REPORT

OF THE
STUDY GROUP
(EXPORT SECTOR)
ON
AGRICULTURAL COMMODITIES
AND
AGRICULTURE BASED INDUSTRIES

MINISTRY OF COMMERCE

FEBRUARY 1965

CONTENTS

PAGE

PREFACE i

CHAPTERS

I. Fundamental problems and policies 1
II. Oilseeds, vegetable oils and oilcakes 42
III. Sugar and its bye-products 62
IV. Cashew kernels 78
V. Tobacco 87
VI. Spices other than cardamoms 101
VII. Raw cotton 115
VIII. Raw wool 121
IX. Fish and fish products 130
X. Lac 146
XI. Natural gums and resins 154
XII. Onions 162
XIII. Raw jute 167
XIV. Essential oils 175
XV. Meat and its bye-products 190
XVI. Fruits and fruit and vegetable products 204
XVII. Walnuts 229
XVIII. Pulses 240
XIX. Animal (including sheep) casings 245
XX. Potatoes 251
XXI. Cocoa products 257
XXII. Garlic 264
XXIII. Dairy products 268
XXIV. Sisal fibre 275
XXV. Repacking of dates and dry fruits 280
XXVI. Concluding remarks 284

सत्यमेव जयते

ANNEXURE I

MEMBERS OF THE STUDY GROUP OF THE EXPORT SECTOR COMMITTEE OF THE BOARD OF TRADE ON AGRICULTURAL COMMODITIES AND AGRICULTURE-BASED INDUSTRIES.

1.	Shri V. Shankar, I.C.S., Earlier Secretary, Department of Food, Ministry of Food & Agriculture, and now Secretary, Ministry of Civil Aviation, New Delhi.	*Chairman*
2.	Shri A. D. Pandit, Special Secretary, Deptt. of Agriculture, Ministry of Food & Agriculture, New Delhi.	*Member*
3.	Shri P. L. Tandon, Hindustan Lever Limited, Scindia House, Ballard Estate, Bombay.	—do—
4.	Shri P.A. Narielwala, Tata Oil Mills Co. Limited, Bombay House, Bruce Street, Bombay.	—do—
5.	Shri M. N. Pittie, C/o Shangrila Food Products Ltd., Great Social Building, Sir P. M. Road, Bombay.	—do—
6.	Shri C. V. Mariwala, Kanmoor House, 5th Floor, 281/87, Narsi Natha St., Bombay-9.	—do—
7.	Shri S. R. Nanawati, Ulhas Oil & Chemical Industries Pvt. Ltd., 16, Apollo Street, Bombay.	—do—
8.	Shri. P.B. Kurup, Techno-Chemical Industries, Calicut (Kerala).	—do—
9.	Shri D. P. Goenka, Hony. Export Promotion Adviser, 9-Barabourne Road, Calcutta.	—do—

सत्यमेव जयते

10.	Shri Ram Das Kila Chand, Messrs. Kilachand Dev Chand & Co., 45—47, Apollo Street, Bombay.	*Member*
11.	Shri Madan Mohan Ruia, State Bank Building, Bank Street, Bombay.	—do—
12.	Shri Charat Ram, 15, Sardar Patel Road, New Delhi.	—do—
13.	Dr. J. S. Patel, till recently Agricultural Commissioner, Ministry of Food & Agri., and now Vice-Chancellor, Agri. University, Jabalpur.	—do—
14.	Dr. S. M. Sikka, Agricultural Commissioner, Ministry of Food & Agriculture, Krishi Bhavan, New Delhi.	—do—
15.	Shri L. Sahai, Animal Husbandry Commissioner, Ministry of Food & Agriculture, Krishi Bhavan, New Delhi.	—do— (Shri Sahai retired from Govt. service in '64 and his place on this group was taken by Dr. P. Bhattacharya, now Animal Husbandry Commissioner)
16.	Dr. G. P. Kane, Senior Industrial Adviser, Deptt. of Technical Development, Udyog Bhavan, New Delhi.	*Member*
17.	Shri N.P. Chatterjee, Agricultural Marketing Adviser to the Govt. of India, Directorate of Marketing and Inspections, Nagpur.	—do— (Shri Chatterjee left the Min. of F & A in Sept., 1963 and was succeeded on this Group by Shri R. T. Mirchandani, now Agricultural Marketing Adviser)
18.	Shri F.C. Gera, Deputy Secretary, Ministry of Food & Agriculture, Department of Agriculture, New Delhi.	*Member* Secretary.

सत्यमेव जयते

ANNEXURE II

COPY OF THE D. O. LETTER NO. 11(5)63-DOT DATED 22ND MAY, 1963 FROM SHRI C. R. KRISHNASWAMY RAO SAHIB, JOINT DIRECTOR, MINISTRY OF COMMERCE, ADDRESSED TO SHRI F. C. GERA, DEPUTY SECRETARY, DEPARTMENT OF AGRICULTURE, NEW DELHI.

Will you kindly refer to your enquiry as to whether spices would fall within the purview of the Study Group on agricultural commodities and agriculture-based industries set up by the Export Sector Committee of the Board of Trade? Though it was originally contemplated—vide the minutes of the second meeting of the Committee held on the 5th December, 1962—that spices would be dealt with by the Study Group on plantation products and other miscellaneous products, we have reconsidered the matter and feel that it would be appropriate for the Study Group on agricultural commodities and agriculture-based industries to deal with all spices except cardamoms. Cardamoms will be dealt with by the Study Group on plantation and other products. I shall be grateful if you could kindly bring this to the notice of Shri Shankar, the Chairman of the Study Group. I shall also be grateful for a line in acknowledgement.

With kind regards,

सत्यमेव जयते

ANNEXURE III

THE TERMS OF REFERENCE OF THE COMMITTEE ON EXPORT SECTOR WILL BE AS UNDER—

(i) To review the export targets of different commodities as envisaged in the Third Five Year Plan and the Fourth Five Year Plan.

(ii) To indentify different commodities which have a reasonable export potential and increasing future possibilities of exports. For the production of such quantities of these products, the Committee would examine the existing structure of different agricultural products and industries and may recommend, *inter alia*:

- (a) diversification wherever necessary of the existing units;
- (b) establishment of new capacities either in the existing industrial units or as entirely new units. Economies of scale will be specially considered and prescribed by the Committee;
- (c) special advantages of suitable locations for different items of exports;
- (d) advantages and rationalisation of transport facilities with respect to specified export commodities; and
- (e) measure to increase productivity in agricultural commodities which have a prominent export angle and also measures for improving the production, quality, grading and marketing of such agricultural commodities which are likely to play a prominent role in exports.

(iii) To review the different incentives granted under the Export Promotion Schemes and to make suitable recommendations as to the manner and quantum of such incentives that may be granted as a packet, if found more desirable to the Export Sector Commodities and Industries.

(iv) To study and recommend, in order to maximise export earnings of different commodities, the formation of suitable export houses, export agencies, export complexes. firms and organisations, involving different treatment for different commodities viz., canalisation through one or few selected organisations or agencies, prescribing floor and/or ceiling prices.

(v) To undertake specific studies of the overseas demand and the potentialities of growing markets as well as threat of substitutes for our traditional goods developing in foreign markets.

(vi) To study the possibilities of further processing and manufacturing out of such articles as are today made in foreign countries from exported raw materials and semi-processed goods from India.

2. The Committee will be free to co-opt members and may constitute sub-committees for different studies.

3. The Committee may also send interim reports on their general recommendations and also reports on commodity by commodity studies as and when they are ready.

PREFACE

The Export Sector Committee of the Board of Trade decided at its meeting on the 5th December, 1962, to set up a number of Study Groups to carry out an intensive study of the commodities that figure in India's export trade. One such Study Group was set up to go into the problems relating to the following agricultural commodities: —

1. Sugar
2. Tobacco
3. Oilseeds
4. Vegetable non-essential oils
5. Oilcakes
6. Essential oils
7. Gums and Resins
8. Lac
9. Cashew kernels
10. Cocoa
11. Walnuts
12. Onions and garlic
13. Potatoes
14. Fruits and vegetables
15. Pulses
16. Pickles and chutnies
17. Repacking of dates and dry fruits
18. Fish and fish products
19. Meat products
20. Dairy products
21. Animal casings
22. Raw cotton and raw jute
23. Raw wool

I was asked to be the Chairman of the Group and to constitute it with such experts from Government and industry who could make a useful contribution to the work of the Study Group. A list of the members of the Group is given in Annexure I attached to this preface. Later, the Ministry of Commerce asked the Group to look into the problems of spices other than cardamom, vide letter No. 11(5)63-B. O.T. dated the 22nd May, 1963, from Shri C.R. Krishnaswamy Rao Sahib, Joint Director, Ministry of Commerce, to Shri F.C. Gera, Deputy Secretary, Ministry of Food and Agriculture (Department of Agriculture) (copy given in Annexure II attached to this note).

Shri Gera worked as Secretary of the Group. The Export Promotion Division of the Ministry of Food and Agriculture worked as the Secretariat of the Group. This Division was strengthened for the work of the Group by the appointment of Shri R. S. Srivastava as an Officer on Special Duty.

The terms of reference of the Group are given in Annexure III.

The Study Group held five meetings. Four of them were held in Delhi while one was held in Bombay.

The report of the Group was finalised at its meeting on the 29th January, 1965.

As desired by the Export Sector Committee, the Study Group carried out intensive studies on the individual commodities concerned. These studies related to recent trends in production and exports (volume, value and destinations), measures needed for augmenting export supplies and for increasing exportability, e.g., research, processing, marketing and quality aspects; improvements in transport and storage facilities; competition from foreign countries and synthetics; the existing and potential demand; publicity; etc. Apart from going into the problems of individual commodities, the Study Group also made an attempt comprehensively to survey the important export promotion problems of the agricultural commodities and agriculture-based industries, and to suggest measures and policies which need to be adopted in order to realise the export potential of this decisively important export sector. These fundamental problems and policies have been brought out in chapter 1 of this report. The individual commodities have been dealt with in subsequent chapters. At the end of each chapter there is a summary of conclusions and recommendations with regard to each commodity. The last chapter highlights briefly the general features of the problems relating to the export of agricultural commodities.

Valuable assistance was given for the work of the Study Group by the following organisations and the Group is most grateful to them for this:—

1. Indian Council of Agricultural Research
2. Indian Central Tobacco Committee
3. Indian Central Oilseeds Committee
4. Indian Central Spices and Cashewnut Committee
5. Indian Central Coconut Committee
6. Indian Central Jute Committee
7. Indian Central Arecanut Committee
8. Indian Central Cotton Committee
9. Indian Lac Cess Committee
10. Tobacco Export Promotion Council
11. Spices Export Promotion Council
12. Cashew Export Promotion Council
13. Shellac Export Promotion Council
14. Marine Products Export Promotion Council
15. Indian Jute Mills Association
16. Central Indian Medicinal Plants Organisation
17. Directorate of Marketing and Inspection
18. Fisheries and Technical Divisions of the Department of Food
19. Directorate of Economics and Statistics
20. Forestry, Dairy and Livestock Divisions of the Deptt. of Agriculture
21. Directorate of Sugar and Vanaspati

I must make a special mention of the heavy burden which the work of the Study Group threw on the Export Promotion Division of the Ministry of Food and Agriculture. This Division carried this burden most cheerfully. The hard and systematic work done by them made the work of the Study Group much easier.

Much hard work has gone into the collection and compilation of data required by the Study Group and into the preparation of this report. If, as a result of the labours of the Group, the exports of agricultural commodities and agriculture-based industries receive concentrated attention and register the increase required in the national interest, the Group's labour would be amply rewarded.

V. SHANKAR I.C.S.

NEW DELHI
February 3, 1965

CHAPTER I

FUNDAMENTAL PROBLEMS AND POLICIES

ROLE OF FOREIGN TRADE

Foreign Trade and Development Planning—Foreign trade, known since antiquity, apart from earning valuable and indispensable foreign exchange, strengthens the sinews of economic development in several ways. It improves organisational efficiency by widening the horizon and outlook of the entrepreneur in the factory and on the farm. It enables the economics of skill and of regional and functional specialisation to be applied on a wider-global as against national-basis. It extends the area of competition and opens out to the producer the possibilities of taking the advantage of higher international prices either on the basis of existing lower costs or costs reduced by improving efficiency.

2. Foreign trade helps to build up the economic life of the community in diverse ways. It gives a fillip to transport, shipping, insurance, banking and other economic activities. The export of wool from U.K., cotton and wheat from U.S.A., foodgrains from Canada and U.S.S.R. and silk from Japan produced powerful effects on the economic development of these countries. In order that exports may perform their due role in economic development, it is essential that export earnings should be ploughed back for investment in a judicious manner so as to continue and, if possible, to accelerate the momentum and magnitude of earning foreign assets.

3. In order to take advantage of the latest advances in the techniques of production, we have to import machinery and skill or capital goods and services and pay for them by exports. During the Second Plan the country's exchange reserves were drawn down by about Rs. 600 crores and reduced practically to the minimum level. The foreign exchange requirement of the Third Plan is estimated at Rs. 5750 crores. The country's invisible income and outgoings are expected to balance each other. In order to finance the country's maintenance imports alone, exports during the Third Plan would have to be in the region of Rs. 3700 crores or Rs. 740 crores per annum, as against Rs. 614 crores per annum during the Second Plan, i.e., they have to be stepped up by about 20 per cent. The value of our exports came to Rs. 2184 crores during the first three years of the Third Plan. Thus, we have to earn Rs. 1516 crores of foreign exchange during the remaining years or Rs. 758 crores per year to fulfil the Third Plan target. This, according to the present indications, is well within reach.

4. During the Fourth Plan period, the requirements of commodity, including PL-480, imports, have been estimated at Rs. 7200 crores. Besides, the obligations on account of repayment of principal and payment of interest on foreign debt are placed at Rs. 1100 crores. The receipts and payments in respect of invisibles are expected to balance each other. Thus, to have an even balance of trade, we require exports to the tune of Rs. 8300 crores which is well-nigh impossible. A target of Rs. 5100 crores has, therefore, been adopted for the Fourth Plan period. This means that all the foreign debt obligations and Rs. 2100 crores of commodity imports

will have to be financed out of external assistance. The attainment of even this target means that exports will have to be stepped up by about 40 per cent during the Fourth Plan period as against 20 per cent in the Third Plan, i.e., we have to move twice as fast as in the Third Plan.

5. Imports and exports constitute two facets of the coin of foreign trade. One has to export goods or services in order to pay for imports. Of course, a country can import goods and in return export bullion or render services, such as transport, banking and insurance. But the scope for such exports is very limited. Similarly, though we have received large economic and technical assistance from friendly countries, which are techno-economically ahead of us, no country can depend on such assistance for its development for long. The loans taken have to be serviced and paid back. The capacity for imports has, thus, sooner or later—and the sooner the better—to be equal to or exceed the capacity for exports. Import substitution and export expansion are for us, as for any newly developing country, among the most important planks of a growth policy. Even afterwards a careful check will have to be kept on the foreign trade trends to ensure that there is no unhealthy drain of our foreign exchange resources and that activities which consume foreign exchange without adequately earning it are restricted to the barest essential for development.

6. **Recent Export Trends**—The following table shows the rate of growth of exports, national income and imports during certain selected periods.

TABLE 1

Comparative growth of National Income and in the values of exports and imports

Years	National income at current prices (100 crores of Rs.)	Indices	Value of exports (crores of Rs.)	Indices	Value of imports (crores of Rs.)	Indices
1	2	3	4	5	6	7
1950-51 . . .	95·3	100	600·6	100	650·2	100
1951-52 . . .	99·7	105	732·4	122	970·0	149
1952-53 . . .	98·2	103	577·1	96	701·6	108
1953-54 . . .	104·8	110	530·5	88	610·2	94
1954-55 . . .	96·1	101	592·4	99	656·3	101
1955-56 . . .	99·8	105	596·3	99	678·8	104
1956-57 . . .	113·1	119	603·3	100	832·5	128
1957-58 . . .	113·9	120	562·2	94	1,043·1	160
1958-59 . . .	126·0	132	580·8	97	906·3	139
1959-60 . . .	129·5	136	639·7	106	960·8	148
1960-61 . . .	141·4	148	660·2	110	1,139 7	175
1961-62 . . .	148·0	155	679·5	113	1,107·1	170
1962-63 . . .	154·0	162	71[illegible]·0	118	1,081·2	166
1963-64 . . .	N.A.	..	794·1	132	1,149·0	177

N.A.—Not available.

The rise in exports has been much slower than that in national income and imports. During the decade ending 1960-61, exports rose by 10 per cent or 1 per cent per annum only as against a rise of 48 per cent or 4.8 per cent per annum in the national income and 75 per cent or 7.5 per cent per annum in imports. Till 1958-59, exports were in a very bad shape and except in 1951-52 and 1956-57, they never crossed the 1950-51 mark. During the First Plan period, the comparative position of exports was not so bad, as the national income and imports were also fluctuating. But, during the Second Plan period, the situation deteriorated fast as exports remained sluggish in the teeth of mounting imports to keep pace with the requirements of development and made little contribution to the spectacular rise in national income. Nor have our exports kept pace with those of other countries and the world average. While the value of world exports rose by 76 per cent during the decade ending 1962, the value of India's exports increased by about 34 per cent only during the decade ending 1962-63.

7. The year 1958-59 marks a turning point in the matter of export performance. Since then our exports have been steadily rising and have reached the figure of Rs. 794 crores in 1963-64 from about Rs. 581 crores showing a rise of about 37 per cent. Simultaneously, we have been able to keep the rise in imports in check. Consequently, they rose only from Rs. 906 crores to Rs. 1,149 crores or by about 27 per cent during this period. In fact the imports have shown a slight decline during 1961-62 and 1962-63, largely due to stricter import policy followed owing to the tight foreign exchange position.

AGRICULTURAL EXPORTS

8. **Importance**—Having explained the role of foreign trade in economic development in general and specially at the present juncture of our economy, we now turn to a brief review of our export performance in regard to agricultural commodities and of the problems of export expansion. Statistics showing export earnings of sixteen agricultural commodities or commodity groups including tea and coffee but excluding some animal products, e.g., hides, leather and leather manufactures, sometimes included in this group, during the First and Second Plan periods (annual averages) and for the first three years of the Third Plan are given in Appendix I. To facilitate a quick examination, indices, taking the First Plan everage as the base, have also been given. The following table shows the growth in the value of agricultural exports and in its share in the total exports:

TABLE 2

Growth in agricultural exports

Periods	Agricultural exports		
	Crores of Rs.	Index	Percentage to total export
First Plan	249	100	41
Second Plan	258	104	42
1961-62	281	113	41
1962-63	312	125	44
1963-64	330	133	42

9. The share of agricultural commodities in the average annual exports has varied between 41 per cent and 44 per cent. It recorded a rise of about 1 per cent during the Second Plan period. Agricultural export gathered momentum during the Third Plan period and were higher during 1963-64 by 28 per cent as compared with the average of the Second Plan period. If we add the agricultural content of the manufactures, the share of the agricultural sector will go up considerably.

10. The rise in export earnings from agricultural commodities compares favourably with the rise in total export earnings. The former had risen by 25 per cent and 33 per cent, by 1962-63 and 1963-64, respectively over the First Plan average, as against a rise of only 17 per cent and 31 per cent in the total export earnings.

11. Agriculture being by far the most important industry, agricultural (including animal husbandry) products constitute the bulk of our exports. Usually an underdeveloped country relies on exports of primary products. Uganda cotton, Ethiopean coffee, Malaysian rubber and tin, Burmese rice and oil are a few examples. In India, tea, coffee, oilseeds, jute (and jute goods), cotton, spices and minerals have been the traditional items. Figures showing the relative proportion (in terms of percentage) of agricultural exports to the total exports in certain countries and continents during the years 1958—62 are given in Appendix II. The percentage contribution of agricultural to total exports in India in 1962 was higher (43) than the world average (26) and the averages for Europe, Asia and North and Central America (17 to 38), but lower than that of South America (50) and Africa (57) and far less than that of Oceania (81). It is not correct to say that a preponderance of agricultural exports means a lower standard of development or living. It is true that the proportion of agricultural exports in 1962 was very high (43 per cent to 95 per cent) in several less developed countries, such as Brazil, Greece, Egypt, Burma, India as compared with certain more development countries, e.g., U.S.A. (25 per cent), Canada (36 per cent), France (18 per cent), Italy 17 per cent). But some countries in the highest rung of development show a high percentage of agricultural exports, e.g., Australia (77) and New Zealand (96). These are all countries, however, with a sparse population and high agricultural yields due to mechanisation of large-scale cultivation and, consequently, have large surpluses of agricultural commodities for export at comparatively low prices. On the other hand, in most less developed countries the surplus is generally what they can spare after meeting domestic demand and fluctuates with the pressure of that demand.

12. In the next ten to fifteen years, till the manufactures and semi-manufactures are able to establish external markets, agricultural commodities will have to play a pivotal role in the export trade of India. But the capacity to discharge that role is likely to be considerably circumscribed by the growing demands of consumption within the country, let alone the trend of increasing costs.

13. **Commodity composition**—The relative importance of the commodities, included in Appendix I, from the export point of view is shown in the following table :

TABLE 3

Relative inportance of agricultural commodities (in terms of percentages of value of earnings) exported

Commodity	First Plan (annual average)	Second Plan (annual average)	1961-62	1962-63	1963-64
1. Tea	42·93	49·80	43·50	41·59	37·33
2. Oil cakes	5·57	3·91	6·16	10·40	10·72
3. Fruits and vegetables (including cashew kernel) . . .	6·31	8·25	9·07	8·69	9·00
4. Sugar	0·08	1·30	5·17	5·58	7·80
5. Tobacco (un-manufactured) .	5·03	5·43	5·32	6·05	6·37
6. Vegetable oils (non-essential) .	8·72	4·34	2·07	4·25	5·98
7. Spices	6·89	4·26	6·34	4·47	4·79
8. Cotton, raw	6·62	4·49	5·09	3·92	3·67
9. Cotton, waste	3·75	2·01	1·87	1·40	1·34
10. Skins, raw	2·65	3·22	2·93	3·49	2·91
11. Lac (including gums and resins)	4·13	2·61	2·36	2·37	2·43
12. Coffee	1·01	2·71	3·20	2·34	2·52
13. Wool, raw	3·02	3·76	2·99	1·82	1·86
14. Vegetable oils (essential) .	0·77	1·05	1·61	1·38	0·87
15. Fish, fresh	1·58	1·96	1·39	1·31	1·73
16. Bones	0·94	0·90	1·03	0·94	0·68
	100·00	100·00	100·00	100·00	100·00

14. Our export trade is built round a few commodities. In 1963-64, tea was by far our largest foreign exchange earner, accounting for 37 per cent of the total. Next in importance came oilcakes, with about 11 per cent. Fruits and vegetables including cashew kernels, sugar, tobacco and vegetable oils (non-essential) contributed another 29 per cent and spices and cotton (raw and waste) were responsible for about 10 per cent. Thus, these 9 commodities/commodity groups accounted for about 87 per cent of the value. Some of these commodities, e.g., sugar and oil cakes have risen remarkably in importance during the last fifteen years.

15. Many other developing countries have also a similar pattern of exports. For instance, Ceylon expects under her Ten Year Plan to earn about 90 per cent of her foreign exchange from three commodities, viz., tea, rubber and coconut. Pakistan, under her Second Five Year Plan, envisages 75 per cent of her export earnings by 1964-65 from raw jute, jute manufactures, raw cotton and cotton manufactures. Burma, Malaysia and Thailand do not expect any diversification of their exports in the near future. The most radical case is that of Mauritius where 99 per cent of the entire export earnings are attributable to sugar. Diversification in export trade becomes difficult partly because of the difficulties in transferring resources from the traditional export sector and partly because of handicaps in adjusting domestic consumption to the needs of export. Moreover, restrictions in the importing countries have also to be reckoned with. It has to be recognised that almost all countries are becoming increasingly conscious of the need of keeping a balance between exports and imports

and the pattern of foreign trade is increasingly becoming bilateral in character. In such a situation development of exports can be based only on mutual interests rather than export potential of any one country. We have also to allow for competition from substitutes and synthetics—a competition which appears to be growing in proportion.

16. **Annual fluctuation—Value**—According to figures in Appendix I, 4 out of 16 commodities/commodity groups show a consistently rising trend since the First Plan period in respect of export earnings. The indices for sugar are high because of the negligible exports in the base period. Other commodities, which have shown a consistently rising trend, are oil-cakes (255), fruits and vegetables (189) and tobacco (168). The trend has been fluctuating in respect of fish, tea, coffee and essential oils. Earnings from fish registered a marked rise during the Second Plan period, but received a severe set-back in 1961-62 from which they showed some recovery in 1962-63 due to rise in prices. In 1963-64, export earnings from fresh fish rose markedly and exceeded the Second Plan level. The earnings from coffee declined in 1962-63 owing to a fall in production following drought conditions in some southern States. They recovered considerably in 1963-64. Similarly, export earnings from essential oils rose continuously till 1961-62, when they were 136 per cent higher than in 1960-61, but they experienced a decline in 1962-63 as well as in 1963-64. Export earnings have been on the decline in the case of spices, raw and waste cotton, raw wool, vegetable oils and lac. In 1963-64 export earnings recovered appreciably in the case of vegetable oils. In the case of lac, the factors have been the preference for shellac in the overseas markets, increasing use of synthetics and the emergence of Thailand as a keen competitor. The preference for white pepper and the acute competition from Indonesia have been responsible for the decline in earnings from spices. Inability to spare more or increasing costs which deprive our exports of competitive advantage or lack of scientific and systematic approach to the question of exports account for the rest.

17. **Volume**—The fluctuations in foreign exchange earnings are due to the fluctuations in the volume and unit value of exports. The volume of our exports fluctuates very widely from year to year. Figures showing the magnitude and directions of fluctuations in volume during the decade ending 1963-64 are given in Appendix III. The magnitute has been measured as a percentage change in a year over the preceding year. The maximum swing upward was as high as 6598 per cent leaving out cases when the preceding year's figure was nil or negligible. The nadir in the downward direction was 99.7 per cent. The magnitudes and frequency of fluctuations were pronounced in some cases as shown below:

TABLE 4

Maximum annual fluctuation in the volume of exports from 1954-55 *to* 1963-64

Commodity	Upward	Downward
1. Pulses	1,800	89
2. Sugar	653	74
3. Groundnuts	1,167	98
4. Rape and Mustard	2,671	72
5. Linseed Oil	701	94
6. Groundnut Cake	1,596	87
7. Sesamum cake	965	83
8. Linseed cake	1,034	82
9. Potatoes	256	43

However, the volume has been relatively stable in a number of cases, e.g., tobacco, wool, cashew kernels, walnuts, onion and garlic.

18. **Unit value**—The foreign exchange returns from the export sector depend not only on the absolute quantum but also on the unit value which, in turn, depends on the relative remunerativeness of export markets and commodities. There is a great scope for enhancing our foreign exchange earnings by a proper choice of countries and commodities for exports. As the matters stand, the unit values fluctuate widely from year to year and from country to country. The unit values (value per metric ton) realised annually by some of the important export crops and crop products during the last ten years are given in Appendix IV. In 1963-64 these ranged from Rs. 283 for onion to Rs. 15,931 for lemongrass oil followed by raw wool with Rs. 5,992 and tobacco and pepper with Rs. 3,315 and Rs. 3,112 respectively. Nine commodities fetched less than 1,000 rupees per tonne, eight between Rs. 1,000 and Rs. 1,600, six between Rs. 2,170 and Rs. 2,904, excluding lemongrass oil, raw wool, tobacco and pepper which fetched Rs. 3,112 per tonne or more.

19. Still more noteworthy are the annual fluctuations in the unit values. The percentage variation, i.e., the range between the minimum and maximum unit values as a percentage of the former varied very widely during the last ten years. The commodities in which fluctuations were very marked are noted below :

TABLE 5

Unit values realised during the ten years ending 1963-64

Rs. per tonne

Commodity	Minimum	Maximum	Difference	Percentage variation
1	2	3	4	5
1. Ginger	600	4,542	3,942	657·00
2. Groundnut	266	1,084	818	307·52
3. Defatted groundnut meal	302	1,176	874	289·40
4. Lemongrass Oil	7,800	25,937	18,137	232·53

20. **Destinational pattern**—India's export trade continues to be concentrated in a few countries. U.K. and U.S.A., which accounted for about 43-44 per cent of India's total exports by value in 1950-51 and 1955-56, still (1963-64) account for about 36 per cent, though the relative share of U.S.A. and U.K. has changed to some extent. The only significant change, which has occurred in regard to the buyers of our goods, is the rise in the relative importance of U.S.S.R. and Japan each of which now accounts for about 7 per cent of our export value.

21. The destinational concentration of our agricultural exports is shown by the following table :

TABLE 6

Relative importance of major importers of our agricultural commodities

Commodities	Major buying countries	Percentage value of exports contributed in 1963-64
1	2	3
Raw cotton	Japan	82
Cashew	U.S.A. & U.S.S.R.	72
Raw wool	U.S.S.R. & U.K.	68
Tobacco	U.K. & U.S.S.R.	70
Meat products	U.K., Belgium, U.S.A. & France	69
Walnuts	U.S.A., U.K., and Canada	78
Onion and Garlic	Ceylon	65
Potatoes	Ceylon	94
Fish and Fish products	U.S.A.	42
Lac	U.K., U.S.A., U.S.S.R. and West Germany	56
Animal casings	Spain	86

Thus, most of our agricultural exports go to U.K., U.S.A. and U.S.S.R.

22. A few large and dependable markets have certain advantages but there are also some attendant risks of concentration. Even in a relatively stable market, random variables may cause wide oscillations in demand and produce unhealthy repercussions in the producing markets. An even distribution of exports provides a better distribution of the risk of demand fluctuations over a number of markets.

23. Some notable changes in destinations are taking place. Amongst western countries the relative importance of U.K. has declined in a few commodities, such as tobacco, raw wool and walnuts. U.S.A.'s relative importance has also been reduced in respect of cashew, raw wool and walnuts. We have developed our exports of tobacco in recent years with U.S.S.R., Poland and Yugoslavia and of raw wool with U.S.S.R. In sugar, U.S.A. and Canada have recently emerged as important importers and contributed over 50 per cent of the value of our exchange earnings from this commodity, in each of the years 1962-63 and 1963-64. We have lost ground in the West German market in respect of sheep casings. The bilateral trade agreements, which we have entered into, have been instrumental in developing our exports with some countries. Among Asian countries we are acquiring a foot-hold in respect of cashewnuts and have made rapid progress in selling sheep casings in Japan. On the other hand, we have lost some ground for onions in Pakistan and Burma and for garlic in Burma. Import restrictions or competing bilateral agreements with other countries have been an important cause of our losing ground in this respect.

EXPORT EXPANSION

24. **The determinants**—Since the primary purpose of exports is to earn foreign exchange, the objective of export expansion should be to step up the volume of exports as well as to maximise net export earnings per unit of resource. The volume depends on the surplus available for exports and its exportability. Firstly, we should have with us commodities or services available for export. Secondly, we should be able to find markets for them. Thus, exports are born of this unison between demand outside and supply within. These two are the prerequisites for the occurrence of the export phenomenon. Given that there are certain quantities of goods available for export and that there are certain countries prepared to buy them, the earnings from exports will depend on the export volume and its unit value. So enhancement of foreign exchange earnings implies efforts in 3 main directions: (1) creation of supplies for export (2) developing exportability (3) maximisation of net of export earnings. These are interrelated. Exportability, i.e., existence of actual and potential markets acts as an incentive to exports and to the creation of export supplies. The existence of export supplies creates an urge for finding markets. Net export earnings both influence and are influenced by exportability as well as the volume of export supplies.

25. **Export Supplies**—The volume of supplies available for export in a country depends on the total volume of available supplies, their utilisation and wastage. The total supplies of agricultural commodities may, for all practical purposes, be equated with production, as stocks are ultimately derived from production and imports are not significant. The modes of internal utilisation are direct consumption (human and animal) and for productive purposes, e.g., wages, seeds, raw materials for manufacture. Agricultural commodities, being perishable, are also subject to waste in the process of handling, transit and storage during the various stages of marketing in addition to wastage in the process of production, harvesting or gathering. Thus, export supplies can be augmented by increasing production and preventing or reducing wastes. The volume of crop production, the major constituent of the agricultural production, depends on the cropped area and its yield. Extension of area has physical limitations. There is very little scope for such extension in old and densely populated countries, except by such engineering feats as the Zuider Zee or large-scale reclamation of waste lands.

26. (a) **Extension of cultivation**—The only scope for an extension in cultivation acreage in India by the reclamation of waste lands including salt, marshy and water-logged lands available in the country. Such reclamation is costly and beyond the resources of farmers who have fragmented holdings or landless labourers who have no or little capital of their own to invest. It is, therefore, possible only as a State or organised corporate including cooperative enterprise based on a long-term assessment of the economics of the enterprise and helped by a far-sighted and

imaginative taxation or loan policy of the Government. A Waste Land Survey and Reclamation Committee, popularly known as the Uppal Committee, appointed by the Government of India some time ago, has located the following areas for reclamation :

TABLE 7

Area available for reclamation

State	Area recommended for reclamation
	(Acres)
1. Punjab	3,16,650
2. Madhya Pradesh	2,01,625
3. Andhra Pradesh	1,37,710
4. West Bengal	1,13,640
5. Bihar	72,196
6. Mysore	68,820
7. Uttar Pradesh	61,018
8. Gujarat	44,638
9. Maharashtra	35,584
10. Madras	25,646
11. Kerala	4,823
12. Jammu and Kashmir	1,340
Total	10,83,690

27. The areas are in blocks of 250 acres or above, It is understood that the State Governments have not been able to reclaim these lands for want of resources. There is need, therefore, for the Central Government to set up Land Development Corporations for reclamation of these and other waste lands. These Corporations, could be given charge, on nominal lease terms, of waste lands of 250 acres and above, including lands located by the Uppal Committee. The Land Development Corporations should not only reclaim these lands but should also utilise them for the growing of crops which have an export potential like castor, cashew, pineapples, sisal, hemp leaving the rest of the vast agricultural lands to feed the domestic market. In other words, this can constitute a scientifically organised and systematically oriented export sector in agriculture.

28. (b) **Yields**—Yields depend on the nature of the season, the standard of husbandry, i.e., intensity of inputs and the unit productivity of inputs. In the current phase of our economy, the most appropriate method for raising productivity is by improving farming practices and methods not only because there is a great leeway in this respect and, therefore, results are likely to be more fruitful but also because it does not involve use of scarce resources. What is required is chiefly the harnessing of manpower and utilisation of water resources to the best advantage. Our productivity is low almost for all crops because the most important productive factor, viz., organisation, is underdeveloped and its input-output ratio is very low. The malady was diagnosed as long ago as 1952 when the Grow More Food Enquiry Committee reported on the reasons for the disappointing experience of the Grow More Food Campaigns

involving hundreds of crores of expenditure. The diagnosis—development of enthusiasm, care, skill and devotion in the cultivator—has not been firmly adhered to. The Community Development Programme was conceived exactly for this purpose, but it has not brought about the desired results. We have emphasised the need for raising yields of various commodities while dealing with them individually. It is essential that the reasons for this chronically low productivity, which has been baffling our efforts, should be understood and the requisite remedial measures taken.. One of them is that, as stated above, we have failed to deal with the cultivator in realistic as opposed to sloganish terms. Besides, and partly as a result of this lack of approach, we have been laying inadequate emphasis on the economic aspects of the task of raising agricultural (productivity or the demonstrational value of agricultural) experiments or on the need of pulling the cultivator out of the net of habit, apathy and tradition. Agricultural productivity is an economic phenomenon and the cultivator can rise to the occasion only if he is motivated economically in terms of the hard facts of life that surround him. It is wrongly supposed that technical superiority of improved practices is enough for bringing about improvements in agriculture. What matters with the cultivator is really the economic superiority and feasibility. To assess this, one has to balance the economic effects of sponsored changes at a number of stages, from the beginning of the tilling operations to the disposal of the crop, such as sowing, irrigation, harvesting, sale, quality, appearance and taste of the main products and bye-products, relationship between supply and demand of the produce in question and of competitive commodities. The effectiveness of extension is marred greatly because the importance of this realistic approach is not sufficiently realised or allowed for. The battery of specialists provided at various levels—block, district, State and Centre—is unable to deal with the psychological impact of these facts. The block personnel are not able to put through their programmes and recommendations on economic grounds and demonstrate to the cultivators the economic value and practicability of measures and methods being sponsored. This is the weakest link in the chain. If this is strengthened, agricultural practices will change for the better and we will find cultivators marching on the path of progress.

29. (c) **Size of holdings**—A serious impediment to productivity is the tiny size of our holdings. Against 2-3 acre farms in India the size of farms is as large as thousands of acres in other countries. On the one hand, we are quick to point to the higher yields in other countries and, on the other, we have passed laws which put a premium on antiquated mode and techniques of cultivation. The exemption of plantation crops from ceiling laws is a step in the right direction but this is not universally followed. If we have to step up our exports of agricultural commodities, at least the important foreign exchange earning crops like oilseeds, cotton, tobacco, sugar-cane, cashew, spices, should be exempted from the ceiling laws. It is on the basis of this selective approach in the application of land laws that both the harmful effects of their application and the dislocation that would be caused to the processes of farming can be minimised.

30. (d) **The best utilisation of available resources and techniques**—It is an undoubted fact that there is a serious lack of resources which can improve yields, e.g., fertilisers and manures, improved seeds, agricultural implements, pesticides. Similarly, there is considerable waste or malutilisation of our water resources. There is no doubt that if sustained and

intensive efforts are made in these directions in areas under irrigation or having otherwise assured water supply, a marked head-way in improving yields can be made particularly in the production of commercial crops which have directly or indirectly an export importance.

31. (e) **Conservation of supplies**—Similarly, while we shout from the house-tops that we are short of this crop and that, we appear to be doing pretty little to prevent wastes of what we produce, as if nothing can be done. Considerable quantities are wasted during storage and transport because of inadequate and unsatisfactory facilities. Loss due to inadequate or unsuitable storage is estimated (in relation to production) at 10 per cent in the case of tobacco, 2 per cent in the case of groundnut, 10 per cent for mangoes, 5 per cent to 10 per cent in bananas in certain areas. It is generally believed that, during the 3-4 months after harvesting, 25 per cent to 40 per cent of potatoes stored are lost due to decay and shrinkage. In the case of quantities kept for longer periods, say, six months—as much as 60 per cent is wasted.

32. Another avenue of saving is from economy in seed rates. The seed rates for many crops vary between different States and in the same State from village to village. It is true that some variation is justifiable because of variations in the type of soil, seed and cultural practices. But, very often, the variations are not based on these grounds and persist by sheer force of age-long habit. We have not been able to dispel the cultivators' ignorant belief that a higher rate of seed does not increase but lowers yield. Use of larger quantities of seed is not only a waste in itself but deprives the cultivator of some potential income because of lower yields.

33. The variation in seed rates per acre of some commodities in different States is shown below:—

TABLE 8

Variations in Seed rates of certain crops

सत्यमेव जयते

Commodity	Seed Rate per acre (lbs.)
Groundnut	55—80
Castor seed	8—20
Sesamum	3—23
Linseed	10—21
Rape and Mustard	1—8
Potatoes	3—24
Gram	32—72
Cotton	10—20

34. (f) **Pull of domestic demand**—Indices showing the movement of production and exports of principal commodities studied by us during the years 1955-56 and 1960-61 to 1963-64, with 1950-51 as the base, are given in Appendix V. The indices show, in a readily intelligible form, the trends in production and exports of these commodities. It is encouraging that the production has advanced substantially during this period, the indices being higher in all cases except castor seed and lac in 1962-63 and castor seed, sesamum seed and sesamum oil in 1963-64 out of 30 and 26 commodities for which figures are available. In the case of castor seed production has been at a low ebb since 1955-56 when it had risen by 21 per cent over 1950-51. The same applies to sesamum seed and oil, except for a recovery

in 1962-63. The rise had been phenomenal in a number of cases by 1962-63, e.g., rape seed (70 per cent), potatoes (89 per cent), sugar (98 per cent), raw cotton (83 per cent), castor oil (414 per cent), rape and mustard oil (72 per cent), castor cake (510 per cent), rape and mustard cake (72 per cent), lemongrass oil (131) per cent in 1961-62). But there was a set back in 1963-64 in the case of potatoes, rape and mustard seed, rape and mustard oil, castor oil and cake. The production of raw cotton and sugar recorded further rises in 1963-64. In some cases, production, though higher than that in 1950-51, has been downward since 1960-61 when it was at its peak during this period—pulses, fish and fish products (till 1962-63), sugar, black pepper, rape and mustard seed, oilcake. In some cases—chillies, ginger, raw wool, groundnut cake—production has been rising throughout the Third Plan period.

35. The exports did not keep pace with the production in many cases. Compared with 1950-51, exports of oilseeds had dwindled to 20 per cent by 1963-64 because of the disappearance of most oilseeds from the export markets. This was due to the greater utilisation for the manufacture of oil whose production, in some cases, registered marked increases. But it is noteworthy that the exports of oils also fell precipitously during 1960-61 to 1962-63 and the increased production was utilised internally. The export index for vegetable oils stood at 93 in 1962-63 as against the production index of 140. The decline occurred in all cases, except castor oil, in which the 1962-63 exports were somewhat higher than those in 1960-61 to 1962-63 and the increased production was utilised internally. marked recovery in 1963-64 taking exports above those in 1950-51 but still far below those in 1955-56. Exports of raw wool had also lagged behind for similar reasons. Other striking cases of lag between production and exports are those of pulses, lac and lemon grass oil (till 1961-62).

36. It is gratifying that the rise in the exports of tobacco, oilcakes, spices and sugar has out-stripped that in production. The abnormally high indices of raw cotton are due to the abnormally low exports in 1950-51. But the point worth examination, specially for tobacco and some spices, is whether exports could not have been increased further by curtailing domestic consumption by a small margin, where necessary.

37. Figures showing the percentage of exports to total supplies, i.e., production plus imports are given in Appendix VI. To be exact, statistics of stocks should also have been taken into account. But these are not available. The percentage of exports to production is very low in respect of most of the commodities and in 1962-63 did not exceed even one in respect of 14 out of 30 cases, namely, all the five oilseeds individually and, as a whole, 3 of the vegetable oils, 3 of the oilcakes, potatoes and pulses. There was no improvement in 1963-64. Exports did not exceed 1 per cent of production in any of the 14 cases, except sesamum cake. The export percentage is between 1 and 5 in the case of fish and fish products (1962-63), chillies and sesamum cake, between 5 and 10 in the case of raw cotton (1962-63), groundnut oil, linseed cake and between 10 and 20 in the case of sugar and tobacco. There are only a few commodities for which the share of exports may be regarded as respectable, namely, raw wool (33 per cent in 1962-63), ginger (25 per cent), groundnut cake (45 per cent), black pepper (79 per cent) and lac (62 per cent in 1962-63). In the case of lemongrass oil, the percentage came to 75 in 1961-62.

38. The percentage of exports was higher in 1955-56 as compared with 1950-51 in a number of cases, viz. sesamum seed and oil, groundnut, rape and mustard and linseed oils, all oilcakes (except sesamum), pulses,

chillies, ginger, fish and fish products and raw wool. The rise was very marked in the case of linseed oil and raw cotton. On the other hand, the proportion fell in other cases and the decline was a marked one in the case of linseed, pepper and lac. There have been no exports of castor seed since 1950-51. Oilseeds were practically all used within the country. Groundnut and sesamum figured in the export markets occasionally and nominally, the exports rarely exceeding 1 per cent of the production Amongst vegetable oils, groundnut, linseed and castor, have been exported regularly but the proportion of exports of groundnut oil was less than 1 per cent in 1960-61 and 1961-62 as against 14.8 per cent in 1955-56. It went up to 5 per cent in 1962-63 and to 8 per cent in 1963-64. The proportion of linseed oil exports has fluctuated violently between less than 1 per cent and 66 per cent during these years. The proportion of groundnut cakes used for exports has risen from 7 per cent in 1955-56 to 48 per cent in 1962-63. There was a slight fall in 1963-64. The exports of linseed cakes have accounted for 3 per cent to 17 per cent of production during these years. Of other oilcakes, only a negligible proportion, less than 3 per cent, is exported. Thus, apart from castor, groundnut and linseed oils and groundnut and linseed cakes, exports can be said to constitute insignificant proportions of the production of oilseeds and their products among the major earners of foreign exchange, and to have remained practically stationary.

39. Tobacco exports show a very limited range of variation, between 13 per cent and 19 per cent. The relative importance of exports, as compared with 1950-51, has on the whole, been downward in the case of lemongrass oil and lac and in the case of raw wool and fish and fish products since 1955-56. The exports of pulses have been negligible and those of chillies too have never exceeded 3 per cent. In other cases, no definite trends are discernible. The proportionate share of exports has ranged between 61 per cent and 81 per cent in the case of black pepper during this period (except in 1955-56). The spurts in sugar exports during 1961-62 and 1962-63 were quite exciting and promising; but the lustre has somewhat worn off in 1963-64 and may not revive in 1964-65.

40. The following table shows the comparative trends in production and export percentage for the commodities given in Appendix VI:

TABLE 9

Comparative trends in production and its export percentage

Nature of trend	1955-56	1960-61	1961-62	1962-63	1963-64
1. Rise in both production and export %	17 (16)	8 (7)	6 (5)	7 (6)	4 (1)
2. Rise in production but fall in export %	5	8	7	2	6
3. Fall in production but rise in export %	..	3	3	7	8
4. Fall in both	..	2 (1)	3 (1)	..	2 (1)

N.B.—Figures in brackets show the number in which the rise was faster and fall slower for production than for export percentage.

41. **In** a majority of cases the directional change was upward. But this is rather illusory as in almost all cases (figures in brackets) the rate was faster (except in 1963-64) for production. Then there are quite a large number of cases in which the export percentage fell with a rise in production. The commodities which evinced this tendency in one or more years are tobacco, oilseeds and oils, as a whole, groundnut and groundnut, linseed and castor oils, sesamum cake, cashew kernels, sugar, raw cotton, pulses, black pepper, chillies, ginger, lac and fish and fish products. The opposite tendency, i.e., rise in export percentage in spite of a fall in production or a predilection for exports was evinced in 21 cases only during one or more of these years. There are several commodities, viz., cashew kernels, chillies, and fish and fish products which did not have this silver lining at all, i.e., in none of these years was the fall in production accompanied by a rise in export percentage.

42. (g) **Trends in per capita availability**—It has been seen that exports have not risen adequately during recent years and the increased production was generally not turned to the advantage of exports due to the pull of the domestic demand. Let us now analyse this factor further and see whether this pull was due only to a rise in population or also due to rise in income or rate of demand in the light of trends in per capita domestic availability. Statistics showing the per capita retention of the supplies of the principal agricultural commodities of human use during the years 1950-51, 1955-56 and 1960-61 to 1963-64 and its movement with 1950-51 as the base are given in Appendix VII. It is difficult to form estimates of domestic consumption or retention. Firstly, statistics of stocks are not available. Supplies have, therefore, been equated with production plus imports. Secondly, the periods, classifications and nomenclatures adopted by the compilers of production statistics are not always the same as those used in trade statistics. In some cases the units are different, e.g., yards or gallons in one case and tons in the other. The per capita retention in 1955-56 was higher as compared with that in 1950-51 in 12 out of 20 commodities. The rise was of a moderate order (1 per cent to 5 per cent) in most cases: potatoes, ginger, tobacco, groundnut, rape and mustard, oilseeds, as a whole, and rape and mustard oil. In a few cases, the rise was of a high order, viz., pulses (18 per cent) and sugar (46 per cent). In some others the rise was still higher. Internal availability of black pepper was more than twice and that of castor seed nearly 5 times that in 1950-51. There was a slight fall in the availability (up to 9 per cent) in the case of fish and fish products, chillies, sesamum seed, groundnut and sesamum oils, and oils as a whole, and marked decline in the case of linseed oil. Internal retention in 1960-61 went up further (over 1955-56) in several cases, viz. pulses, potatoes, sugar, groundnut, rape and mustard seeds, oilseeds as a whole, and rape and mustard oil. The downward trends in fish and fish products, groundnut and linseed oils, and oils as a whole, were reversed. Only in chillies, sesamum seed and oil was the downward trend evinced this year too. Per capita retention declined in the case of ginger, tobacco, linseed and castor seed.

43. Taking all these years, indices of per capita availability have been generally upward, all these years, in the case of potatoes, tobacco, groundnut and rape and mustard oil. There was lowering of internal retention in 1963-64 in the case of tobacco, and rape and mustard oils by 11 per cent and 28 per cent respectively. Per capita availability of oilseeds, as a whole, was upward because of a rising trend in groundnuts and rape

and mustard seed (except in 1963-64). Per capita retention of other oilseeds, though downward, has generally (except sesamum) ruled much above 1950-51 levels. Per capita domestic retention has been downward in the case of pulses (except in 1960-61), black pepper, ginger and oils. However, in pulses and oils (except 1955-56 and 1963-64) it has been higher than that of 1950-51).

44. Changes in per capita domestic retention are more significant in relation to changes in production. The following table shows the comparative trends in the per capita retention and production for the commodities given in Appendix VII during the years 1955-56, 1960-61 to 1963-64, with 1950-51 as the base.

TABLE 10

Comparative trends in production and per capita retention

Nature of trend	1955-56	1960-61	1961-62	1962-63	1963-64
1. Rise in both production and per capita retention . . .	12 (4)	11 (3)	10 (5)	7 (2)	6 (4)
2. Rise in production but fall in per capita retention . . .	7	3	1	1	1
3. Fall in production but rise in per capita retention . . .	*Nil*	1	*Nil*	*Nil*	*Nil*
4. Fall in both	*Nil*	4 (2)	6 (5)	7 (5)	11 (3)

45. In a majority of cases the directional change was upward. The rate of expansion of per capita retention was faster (figures in brackets) than that of production in 18 cases. Among the commodities which evinced this trend some year or the other are cashew kernels, potatoes, ginger, black pepper, chillies, tobacco, sugar, some oilseeds and oils. Then, the rate of fall in the per capita retention was slower than that in production in a number of cases (figures in brackets). Commodities which evinced this trend were pulses, fish and fish products, potatoes, rape and mustard seed and oil in 1961-62 and sugar, rape and mustard seed and oil, linseed, oilseeds, as a whole, in 1962-63, rape and mustard, sesamum seed and oil in 1963-64.

46. Domestic demand for agricultural commodities both for raw materials and edible purposes has been increasing and will continue to rise for some time due to the expansion of industry and rise in incomes. There is need to take measures, obligatory or economic, which will ensure the flow of available supplies in the desired directions. In schemes for balancing the interests of domestic and export markets, we need to draw a distinction between essential and non-essential commodities and apply curbs more freely on the consumption of the latter. For non-essential commodities, exports should receive priority and only the balance left after meeting the export needs may be released for internal purposes. For essentials it should be the other way about, but due regard must be had to the needs of foreign exchange for development and, consequently, the justification of consumption sacrifices within the country in order to export outside. The requirements of internal consumption could be worked out in the light of planned levels of consumption, if required on an

austerity basis. For example, consumption curbs should not be resorted to for commodities like milk products, meat, eggs which constitute essential elements of a balanced diet and are actually in short supply but could be thought of in the case of fish where alternative sources exist and export possibilities are restricted to only a few varieties. But there are a number of commodities, e.g., cereals and sugar, whose present levels of consumption closely approximate the requirements of a balanced diet, and others which are in the non-essential category and which have also good foreign demand, e.g., tobacco, cashew kernels, chillies, black pepper. Consumption can be pegged at certain appropriate levels in such cases. It is only a planned level of consumption on this scientific line that can release commodities for export according to our needs of exports and demands in foreign markets. It has to be borne in mind that these markets can be held not by fluctuating but only by assured exports.

47. The trend of world prices of sugar is likely to be favourable once in three or twice in four years. On the whole, if costs are kept down, exports could be profitable over a period of years. Some new markets are available for our sugar. World demand for sugar has been increasing in recent years at a fast rate and is likely to increase further with rise in incomes. We are also situated advantageously for meeting the requirements of countries in Asia and Africa which import about 6 million metric tons of sugar annually. Sugar can, therefore, bid fair to develop into one of the most important net foreign exchange earners, imports on account of sugar industry being negligible. To avail ourselves of this splended opportunity, we should enhance our production, reduce costs and apply restraints on consumption. Under scientific planning this is feasible but it postulates a determined, long-term policy and decisions which may be inconvenient or unpalatable but nevertheless in the interests of the country as a whole.

48. **Exportability (a) Factors of Exportability**—Exportability depends on the existence of actual or potential external demand and the relative competitiveness. The factors which influence exportability are multifarious, world-wide and changing. Broadly, the following groups of factors can be regarded as influencing exportability or demand and competitiveness. Variations in demand may arise from changes in; (a) prices in domestic markets and exporting countries; (b) levels of income and its distribution pattern; (c) domestic supply in importing countries (d) export supplies in the competing countries and their exportability; (e) consumer's preferences. Changes in competitive strength may arise from (a) technological progress; (b) changes in cost of production and prices; (c) improvements in quality; (d) marketing, credit and banking developments; (e) processing and manufacturing developments; (f) progress in publicity and selling techniques. Though the prime movers are often the economic factors and Government policies, developments in almost every sphere—educational, political, social and even religious—and in almost any part of the world have some repercussion or the other on exportability.

49. **Demand**—Statistics showing the trends in the world demand of 17 important agricultural commodities, as reflected by movements in their world exports (by value) and of India's share in them during the years 1948—52 and 1958 to 1962 are given in Appendix VIII. The indices,

with 1948—52 as the base, show an all-round expansion in demand. Demands were higher throughout the period and for all commodities except rape-seed oil since 1960. Leaving out this commodity, the indices ranged between 106 and 393 in 1958, 118 and 389 in 1959, 112 and 345 in 1960 and 117 and 375 in 1961, 117 and 567 in 1962. By 1962 the demand for rape and mustard seed had risen by 467 per cent, for castor oil by 131 per cent, for cotton seed oil by 161 per cent, and for sesamum seed by 129 per cent. Our exports of many commodities have not kept pace with the world demand with the result that our share in world exports has been declining in many cases, e.g.; pepper, tobacco, wool, oilseeds and oils, oil-cakes and groundnut meal. There was considerable recovery during 1963-64 in the case of pepper, groundnut oil and castor oil.

50. In order to develop exportability, a thorough knowledge of the overseas demand is needed. A continuous study of the trends and projections of demand in the traditional and new markets is the *sine quo non* of an effective programme of export expansion. Then alone shall we be in a position to know where and why we have succeeded or failed, the reasons for our successes and failures and the remedial measures which can convert failures into successes. The instrument of market knowledge has an indispensable role to play not only in measuring and forecasting but also in satisfying and creating demand.

51. Unfortunately, we have been neglecting this crucial aspect badly with the result that we are being left behind in the race. A large number of delegations are sent by many countries to India to investigate into the potentialities for the sale of their export products. Similar delegations should be sent by us. These delegations should consist of not only commodity specialists but also of others who can supplement their talents in an essential chain of enterprises.

52. (c) **Adaptation of the Productive System:** (i) **Production Pattern—** The production pattern should be oriented towards export, i.e., the crops, varieties and qualities, which have greater export potentialities, such as, burley, cigar-filler, virginia and low nicotine tobaccos, palmarosa, sandal and other oil-yielding plants, criollo variety of cocoa, white pepper should be given greater emphasis. For this purpose crop planning is called for. Crop planning should aim at achieving a proper balance between domestic and export requirements and also at securing the best returns from the agricultural resources. The ideal should be to produce all that is needed for exports as well as domestic use and also to make it available at prices which are remunerative to producers and exporters and fair to manufacturers and consumers. Planning need not always be physically enforced; preferences and incentives often succeed in breaking down the barriers of resistance more efficiently than legal regulations.

53. (ii) **Dehydration and Processing—**Dehydrated products have great export potentialities. To make dehydration economic, the process should be mechanised. Dehydration will also help in siphoning off seasonal gluts in supplies and in reducing seasonal variations and prices. Mechanised dehydration has been gaining ground recently in India. During the Second World War, a number of dehydration plants were set up to meet the army demand for dehydrated potatoes. With the end of the war these units came to a stand-still, improvised as they

had been to meet temporary war-time demand. Recently, owing to changes in the pattern of consumption and export, the industry has been showing signs of revival and stability. Increased army demand owing to the emergency, has also given an impetus to its development.

54. Processing of some products, e.g., preparation of onion and garlic powder and banana, mango and other fruit products should be encouraged, as they have considerable export potentialities. As between raw products and processed goods, the aim should be to export processed products as they fetch a high rate of return and foster other economic activities in the country. Thus exports of rum instead of molasses, of shelled instead of in-shell walnuts, of cotton and woollen fabrics instead of cotton and wool, oil and oilcakes instead of oilseeds should be preferred. A composite view of export performance, potentialities and policies should be taken of the raw materials and their products, e.g., oilseeds, oils and oilcakes, raw cotton and cotton textiles, raw wool and woollen textiles, jute and jute manufactures. The aim should be to earn the largest foreign exchange from a group of commodities and not necessarily from each of them separately and to restrict the export of primary products to the unavoidable. It is well known that many of our processed agricultural commodities have to face a keen competition in overseas markets from countries where the processing industry is highly advanced and which are able to export processed products at lower prices due to superior processing methods and other advantages. Ways and means, e.g., subsidy on raw material, incentives for encouraging inventiveness and improving the processing techniques may be devised for improving the competitive strength of the processing industries.

55. A number of plants have been set up for the dehydration of peas, bananas and onion and for the preparation of fruit products and banana and onion powders. It will be desirable to encourage setting up of dehydration plants in the important fruit and vegetable producing States, e.g., Madras, Madhya Pradesh, Uttar Pradesh, Bihar, Punjab, Jammu and Kashmir and Himachal Pradesh.

56. (d) **Marketing Improvements:** (i) **Fumigation**—Many agricultural commodities are vulnerable to fungus and insect infestation. They, therefore, deteriorate quickly during storage and transit. Their quality, when received by importers, does not conform to expectations. Such deterioration can be prevented by adopting suitable fumigation practices before export. In some cases, commodities, and, in other, the containers and boxes require fumigation. There is no law in the country under which fumigation of agricultural commodities can be made compulsory. Usually, the exporter takes recourse to fumigation only on the demand of the foreign buyers. Fumigation facilities exist at a number of places, Bombay, Madras, Calcutta, Cochin, Amritsar, Kandla and Visha-Khapatnam. It is understood that the Directorate of Plant Protection, Quarantine and Storage under the Ministry of Food and Agriculture would be able to undertake fumigation in several other places if sufficient business is available.

57. Only 25 per cent of the capacity of fumigation plants in the country is being actually utilised. There is need to enforce suitable legislation so as to make fumigation compulsory before exports for such agricultural commodities as are vulnerable to fungus or insect infectation. Some of the commodities for which fumigation is needed are wool, goat-hair, celery seed, tobacco, pulses, walnut and cashew.

58. (ii) **Cold Storage**—A number of perishable commodities like onions, garlic, potatoes, citrus fruits, mangoes, bananas, meat, fish need suitable and adequate cold storage facilities to reduce or prevent losses due to deterioration during storage. According to a survey, undertaken by the Directorate of Marketing and Inspection a couple of years back, the number of cold storages in the country is 359. Precise information about the country's requirement of cold storage is not available but the present installed capacity is considered inadequate. Efforts should be made to establish more cold storages.

59. (iii) **Refrigerated Shipping**—A number of commodities like onion, garlic, potatoes, citrus fruits, mangoes, bananas, fish and meat need adequate refrigerated shipping facilities during transhipment to overseas markets. The exports of these and other allied commodities came to over one lakh metric tons during 1962-63. If all of them were to travel under refrigerated shipment, about 85 lakh c. ft. of refrigerated shipping space would be required. The requirement of refrigerated shipping at Madras is estimated at 6.66 lakh c. ft. and at Cochin at 39.02 lakh c. ft. As against this, 4.16 lakh and 8.40 lakh cubic feet or 62 per cent and 21 per cent of the requirement are available at Madras and Cochin respectively. Though exact figures are not available, it is known that there is shortage of refrigerated shipping at all other ports, except Bombay.

60. (iv) **Quality Improvement**—Our competitive position with regard to new as well as traditional items depends, to a great extent, on the quality of the goods supplied. Quality control and standardisation occupy a very important place in any scheme of export promotion. There is much room for improvement in this respect in our country. Complaints against our exports regarding poor quality, variation in standard from the sample submitted and defective packing as well as deterioration during transit have not been infrequent. With the increase in competition in overseas markets, it is imperative that the quality of our export products should be improved and the consignments should conform to the terms of contract. Compulsory grading and pre-shipment inspection before export are required in respect of all the export commodities. The need for improving the quality of our exports has been emphasised time and again. The export promotion committee had stressed it as early as 1947 and reiterated it in 1957. An *ad-hoc* committee on quality control and pre-shipment inspection appointed in 1960 to go into the question of quality control on exports, recommended the enactment of a legislation to introduce quality control and pre-shipment inspection in respect of export goods.

61. Many agricultural commodities are already subject to certain types of quality control and pre-shipment inspection either under official Acts or by non-official agencies. Compulsory quality control and pre-shipment inspection have been introduced for 14 agricultural products. An Export (Quality Control and Inspection) Act has been passed and quality control and pre-shipment inspection are proposed to be introduced shortly in a planned manner in respect of the remaining export products. Besides, cashew kernels can be exported only if they bear the certification mark of the Cashew Export Promotion Council. Apart from legislative and administrative measures, what is needed is a genuine consciousness and conscientiousness about the importance of quality and honesty in trade and also about the need for raising the standard of quality right from the stage of production. Complaints are not unknown that commodities exported under compulsory quality control sometimes do not conform to the

expected standard. There is thus need for a more rigid enforcement of the provisions, and of elaboration so as to satisfy sophisticated markets all over the world.

62. (v) **Cooperative Marketing**—The cooperatives have an important role to play in export promotion. A net-work of efficient marketing cooperatives could be instrumental in the reduction of middlemen's charges and other marketing costs, securing better returns to the growers and in improving our competitive position in the world markets in general. At the same time, in view of the pattern of production and the stage of development of non-credit cooperatives in our country, leaving aside the advisability or otherwise of such a measure per se, it will not be desirable to entrust the monopoly of exports of any commodity to the cooperative sector. Our experience in respect of a few commodities, e.g., banana and pulses has shown that such a step is not always conducive to the best interest of exports. Whilst encouragement to cooperatives must constitute a plank of State policy it would not be in the national interests to permit cooperatives to adopt a dog-in-manger policy. When cooperatives are unable or fail to deliver the goods there should be no hesitation in supplementing or supplanting them. Cooperative movement is not an end in itself but a means to an end and the adoption of the means must be related to the service of the end. It is only thus that national interests in their larger context can be served.

63. (vi) **Publicity**—Not enough publicity is being given in other countries to what India can supply. There is need for setting up trade offices in countries where they do not exist. These offices need not have a large personnel. Even a skeleton staff of one or two persons continuously engaged in bringing to the notice of potential buyers our export commodities would go a long way in developing exports. For example, we have been exporting cashew kernels and walnuts without realising that importers re-pack them in small consumer packs and use their own brands. Attractive cans and bottles for some of our canned and bottled products could also make them more acceptable to the foreign consumers.

64. (c) **The Price Factor**—Prices of many goods which India exports are out of line with world prices. One of the reasons is the generally low productivity of agriculture and inefficient methods of production of agriculture-based manufactures, such as oilcakes and sugar. A full analysis of the cost factors requires a comparison between costs in India and in other countries competing with India. Even in the absence of full information one can say that the pressure of inflationary forces (and they are likely to continue) has been pushing up the costs of production of most commodities, especially, those where the major components are raw materials and wages, such as jute products and sugar.

65. Crop planning and regional and purposive specialisation should also make for lower costs of production. An attempt has been made in this direction in regard to raw sugar.

66. Under the Agricultural Produce Cess Act, 1940 a cess of $\frac{1}{2}$ per cent is levied on a large number of commodities including practically all the important export crops and products. This levy was originally intended to provide funds for research on agricultural commodities. The annual yield from this cess came to about Rs. 50 lakhs during 1960-61 and 1961-62. Ample funds are now available from other sources for this purpose. Moreover, this levy has adverse effects on the exportability of the commodities by adding to their costs. It has, therefore, become an anachronism and should be abolished.

67. Research in export crops should be intensified in order to evolve methods of lowering costs of production and improving quality. Efforts should also be made to discover new uses of some of the bye-products. A better utilisation of a number of bye-products which are not being put to economic uses and are largely wasted, such as bye-products of meat, rice (rice bran), sugar, cotton seed and tobacco seed could yield considerable economic returns, lower the costs of production and augment the supply of goods for internal use as well as export. The economic utilisation of bye-products may in many cases bring about a significant change in the economy of the commodity notwithstanding the high cost of production of the main commodity and as such may prove to be a valuable agent of export promotion.

68. (f) **Coordination with Imports**—Our import policy also needs orientation towards export expansion. A liberal policy should be adopted for promoting imports which will lead to greater exports. To grudge foreign exchange for importing articles which will bring more foreign exchange would not be a wise policy. Some commodities for which liberalisation of import policy is currently needed are tobaccodrying plants, cigar wrappers, bleaching powder, and packing paper forwalnuts, special colours, essences and packing materials for sugar confectionery, processing machines for preparing fruit products, marine engines, synthetic twines and vital components for cold storage for fish and packing material for spices. Both import substitution and export expansion fulfil the same objective and should be treated as complementary. While emphasising export expansion, the need for import substitution should not be overlooked. The results of import substitution are easier, surer, calculable and controllable.

69. The most important source for import substitution in our country are the foodgrain crops. We spend huge sums on food imports. Several countries, such as U.S.S.R., U.S.A., and Canada have financed and others, such as Burma and Argentina are financing their industrial expansion through exports of foodgrains. Ceylon and Philippines have recently achieved remarkable progress in import substitution of food articles. The exclusion of foodgrains from our export sector puts a severe limitation on export expansion, as 80 per cent of our cropped area is occupied by them. If suitable measures are taken to raise agricultural efficiency, there is no reason why we should not only wipe out foodgrains from our import list but also begin to export them. There are other crops; e.g., jute and cotton, for which import substitution is needed.

MAXIMISATION OF NET EXPORT EARNINGS

70. Volume for volume, the size of foreign exchange earnings varies directly with unit value. We have seen that the unit value of our exports varies greatly in respect of different commodities and for the same commodity in different years. The unit values depend on the relative prices of commodities in different countries. The analysis of unit value data for individual commodities has revealed that there is great scope for raising unit value by a judicious selection of commodities and countries. For example, exports of confectionery and sugar candy obtain higher unit values than other sugar products. Exports of sugar to Singapore, Malaya and U.S.A., of frozen meat to U.S.A., and France and of walnuts to U.S.A. and Canada fetch higher returns.

71. If the objectives were to earn the highest foreign exchange at

any cost, the highest unit value would be the sole criterion. But, for an economic utilisation of resources, what is needed is the highest net return per unit of resource input. That requires comparative information in respect of input-output ratios not only for exports but also for other investment, costs of production and of export, and the foreign exchange components of these costs. In the absence of such detailed information, some indicators of relative profitability have been given here. The most important resource for the production of agricultural commodities is land. One of the significant indicators may, therefore, be the foreign exchange earnings per acre, i.e., value of production per acre at the unit value realised by their exports. Figures of average foreign exchange earned per acre from certain important export commodities over a period of three years ending 1963-64 are given below—

TABLE 11

Average foreign exchange earnings per acre

Commodity	Rs.
1. Garlic	1,562
2. Potatoes	1,297
3. Tobacco	1,080
4. Onions	966
5. Ginger	761
6. Chillies	548
7. Cashew kernels	468
8. Black pepper	332
9. Groundnut	308
10. Rape and mustard	173
11. Pulses	154
12. Raw cotton	103
13. Linseed	90
14. Sesamum	81

सत्यमेव जयते

*Triennium ending 1962-63.

72. Thus, per acre returns of foreign exchange vary enormously for different crops. An acre under garlic yielded 20 times as much and an acre under potatoes 16 times as much foreign exchange as an acre under sesamum. Onions, ginger and chillies have a much higher foreign exchange yielding potential than pulses, cotton, linseed and sesamum. For augmenting foreign exchange earnings it would be very useful on the basis of recent data, to give preference to the cultivation of those crops which have a higher foreign exchange earnings potential, if such changes in cultivation pattern are possible, if markets can be found for the additional production and if the relative prices do not change unfavourably. This is, however, on the gross return basis. A more useful and refined scaling of export commodities should take into account, as mentioned above, several other factors, particularly, the costs of production and of export and their foreign exchange components. An analysis on these lines may induce a better sense of proportion and priorities in devising export promotion measures and may, therefore, be of inesteemable value in achieving the objective of export expansion.

ROLE OF GOVERNMENT

73. The Indian producer, with a ready domestic market, has had little incentive for exports. The existence of large foreign exchange balances created a disposition to take foreign exchange resources for granted in the First Plan period. The experience of the First Plan, coupled with large increases in food production around 1955, induced optimism about balance of payments at the outset of the Second Plan as well. Emphasis on the balance of payments was confined to import control and the production of import substitutes. It is only when the foreign exchange crisis bogged the progress of the Second Plan on almost all fronts that serious attention began to be given to this aspect.

74. Several steps have been taken since then to invigorate the export sector and the imperative need for a vigorous export sector is now recognised on all hands. The Government has adopted a definite policy for export promotion. Steps have been taken in several directions, institutional, fiscal and others, to boost exports. Export Promotion Councils have been set up to secure the active association of growers, producers and exporters in the export drive. A number of other institutions, such as the Export Credit and Guarantee Corporation have been set up. Enlarged credit facilities are now available to the exporters through the Reserve Bank of India, the State Bank of India and the State Trading Corporation. A number of incentives have been provided to increase the competitive capacity of our export products. Special schemes have been drawn up for several commodities to provide benefits against exports effected. Railways accord priority of movement and have introduced concessional freights ranging up to 50 per cent for a number of export commodities. The Government of India have entered into bilateral trade agreements with a large number of countries to develop trade with them along healthy and sound lines.

75. Still we have a long way to go. Exports will not drop like the dew from the heavens. We have to plan and strive for them. We may have to produce more, consume less, publicise more and improve the quality. We have to produce specifically for foreign markets which may differ from our own. We have to reduce our costs so as to be competitive without being subsidised. In a world of rapid technological advance, rising productivity and incomes, discovery of substitutes, even the maintenance of existing markets needs care, dynamism and foresight in tackling export problems. Exports have to be stepped up by 40 per cent during the Fourth Five Year Plan. The task is a gigantic one particularly in the light of difficulties and efforts involved. Concerted efforts are needed in several directions to augment export supplies and to enhance their exportability and competitive power.

76. The difficulties in expanding exports of primary products are well-known. Production in developing countries will rise with the pace of development. India is trailing far behind advanced and advancing countries in yields per acre. Technological progress results in economy in the use of raw materials and, therefore, has the effect of contracting their demand. Quality has to be improved. Productive efficiency has to be raised. Market knowledge and experience are not adequate. Then there are trade barriers. We cannot offer as attractive credit terms as the industrially advanced countries can. The most difficult problem is the maintenance of a balance between the domestic and export sectors. Lack of this balance has been retarding the exports of some commodities. Then there are affiliations between trade and politics. The difficulties can be overcome only on the basis of quality and assured supplies and not on the basis of

substandards and fluctuating exports. Sacrifices in consumption and in revenue will have to be faced if the high priority of exports has to be fulfilled. These are all matters which only a firm, determined and planned policy can solve. Vacillation, irresolution and haphazardness would be enemies of expansion of exports.

77. Data on numerous aspects influencing demand in overseas markets, trends in productivity of competing countries, internal availability, price movements, relative profitability of markets and commodities have to be collected continuously and in advance for formulating programmes of production and price policies. Frequent purposeful contacts have to be established and even calculated risks have to be undertaken.

78. The group experienced difficulty due to the deficiency and paucity of statistics. For a number of commodities figures of foreign trade are not published separately at all. Similarly, statistics of production are not available, on a forecast basis, for a number of important crops, e.g., fruits and vegetables, some oilseeds and spices. Steps should be taken to remove these lacunae.

79. Policies have to be adapted and measures have to be devised constantly to augment export supplies and improve exportability in the light of this knowledge. The required measures have to be put into practice.

80. Government intervention in the market may be needed to ensure that exports get a priority in the matter of supplies, as has been done for sugar and coffee. Several other policy decisions will have to be taken from time to time. For example, for augmenting production, besides raising yields, some incentives, such as acreage payments can be considered. For augmenting export supplies, price differentials, export quotas, subsidy payments etc., can be thought of.

81. We have to realise that exports are the symbol of development and that every one has a part to play in making a success of the export programmes and policies. The producers have to render service in gearing up production. The consumers have to appreciate the need for austerity in consumption. The traders have to realise the importance of honesty, quality and standardisation. Some of the State Governments have evinced an active interest in export promotion. For example, Punjab has set up an export corporation to develop the export sector of the State. But, by and large, there is need for the State Governments to realise the vital importance of exports in our economy and to associate themselves more actively with the national export effort. In short the export consciousness has to permeate throughout the whole process. For this, educative and publicity programmes are needed, as well as strict adherence to standards and qualities. Good performance must be rewarded and bad performance penalised. Presentation of articles must be improved and, if necessary, established competing interests have to be won over. There is no reason then why we should not become net exporters rather than deficit importers.

82. The key to many of the export problems would lie in a greater study of the export markets, increasing development of contacts between exporting interests and agencies in our country and importing interests in others, in strengthening our commercial representation in foreign countries and helping them to sell goods in foreign markets on real commercial lines, in improving market intelligence and knowledge of consumers' preference, in selling goods by appearance as well as quality and in offering

adequate inducement and just rewards for meritorious work done. In certain commodities which do not admit of large-scale standardisation we may have to sell in foreign countries through organised stores; in others we may have to sell against approved samples; in others we may have to sell against standardised specifications. We shall also have to provide for risks against failures or losses. It is only then that we can hope to make that impression on foreign markets which we need and deserve.

CONCLUSIONS AND RECOMMENDATIONS: ROLE OF FOREIGN TRADE

Foreign trade, besides earning valuable and indispensable foreign exchange, strengthens the sinews of economic development in several ways. It gives a fillip to transport, shipping, insurance, banking and other economic activities. A target of Rs. 5.100 crores has been adopted for exports in the Fourth Plan period. To achieve this, exports will have to be stepped up by about 40 per cent during the Fourth Plan period.

(Paras 1, 2 and 4).

2. Import substitution and export expansion have to be among the most important planks of our growth policy. Even afterwards a careful check will have to be kept on foreign trade trends to ensure that there is no unhealthy drain of our foreign exchange resources.

(Para 5).

3. The rise in our exports has been much slower than that in our national income and in imports. It also compares unfavourably with that of other countries and the world average. The year 1958-59 marks a turning point in the matter of our export performance. Since then not only have our exports risen by about 37 per cent but our imports have also been kept in check.

(Paras 6 and 7).

AGRICULTURAL EXPORTS

4. **Importance**—Agriculture being by far the most important industry in India, agricultural products account for over 40 per cent of our average annual exports. If we add the agricultural content of the manufactures, the share of the agricultural sector will become much larger. In the next 10 to 15 years, till the manufactures and semi-manufactures are able to establish external markets, agricultural commodities will have to occupy a pivotal role in the export trade of India. But the capacity to discharge this role is likely to be considerably circumscribed by the growing demands of consumption within the country, let alone the trend of increasing costs.

(Paras 9 and 12).

5. **Commodity composition**—Our export trade is built round a few commodities—tea, oilcakes, fruits and vegetables including cashew kernels, sugar, tobacco, vegetable oils (non-essential), spices, cotton (raw and waste). Many other developing countries, e.g., Ceylon, Pakistan, Burma, Malaysia, Thailand and Mauritius have a similar pattern of exports. Diversification of export trade becomes difficult partly because of the difficulties in transferring resources from the traditional export sector and partly because of handicaps in adjusting domestic consumption to the needs of exports. We have also to allow for the growing tendency in many countries to restrict imports and for the growing competition from substitutes and synthetics.

(Paras 14 and 15).

6. **Annual fluctuations**—The export earnings have shown a consistently rising trend in the case of oilcakes, fruits and vegetables and tobacco. On the other hand, they have been on the decline in the case of spices, vegetable oils, cotton and lac. In 1963-64, the vegetable oil exports showed a marked recovery. The magnitudes and the frequency of fluctuations in the volume of exports were very pronounced in some cases: pulses, sugar, potatoes, linseed oil, some oilseeds and oil-cakes.

(Paras 16 & 17).

7. **Unit values**—The unit values realised from our export crops vary widely and ranged between Rs. 283 and Rs. 15,931 in 1963-64. Onions and oilcakes are in the lowest group and lemongrass oil, raw wool, tobacco and pepper in the highest. Still more noteworthy are the annual fluctuations. These were pronounced for ginger, groundnut, defatted groundnut meal and lemongrass oil.

(Paras 18 and 19).

8. **Destinations**—India's export trade continues to be concentrated in a few countries. U.K. and U.S.A. are still our most important customers. But their share (as a per cent of the value of our total exports) has declined from about 44 per cent in 1950-51 and 1955-56 to 36 per cent in 1963-64. On the other hand, there has been a rise in the relative importance of U.S.S.R. and Japan each of which now accounts for 7 per cent of our total exports (by value). Most of our agricultural exports go to U.K., U.S.A. and U.S.S.R. An even distribution of exports provides a better distribution of the risk of demand fluctuation over a number of markets. Some notable changes are taking place in the destinational pattern. During the past few years we have developed our exports of tobacco with U.S.S.R., Poland and Yugoslavia, of raw wool with U.S.S.R. and of sugar with U.S.A. and Canada. The bilateral trade agreements, which we have entered into, have been instrumental in developing our exports with some countries.

(Paras 21—23).

EXPORT EXPANSION

9. **The determinants**—Export expansion calls for efforts in three interdependent direction—(a) creation of supplies for export, (b) developing exportability and (c) maximisation of net export earnings.

(Para 24).

10. (a) **Export supplies**—Extension of cultivation—Efforts should be made to reclaim waste, including marshy and water-logged, land available for the purpose in different States. Such reclamation, being costly, calls for a State or organised, corporate, including co-operative enterprise. There is need, therefore, for State corporations to be set up. The corporations can plan for the development of a scientifically-organised and systematically-oriented export sector in agriculture.

(Paras 26 & 27).

11. (b) **Yields**—India is trailing far behind in regard to yields of agricultural crops. It is essential that the reasons for our chronically low productivity are understood and the requisite remedial measures taken. Amongst the most important of them is the need to orient the community development programme to its true purpose, viz., development of enthusiasm, care and skill in the cultivator. What matters with the cultivator is really the economic superiority and feasibility. The effectiveness of extension is marred greatly because the importance of this realistic approach is not sufficiently realised or allowed for. Consequently, the block personnel

are not able to put through their programmes and recommendations on economic grounds and demonstrate to the cultivator the economic value and practicability of measures and methods being sponsored.

(Para 28).

12. (c) **Size of holding**—The important foreign exchange earning crops like oilseeds, tobacco, cashew-nuts should be exempted from the ceiling laws.

(Para 29).

13. (d) **Utilisation of available resources and techniques**—If sustained efforts are made in areas having irrigation facilities to make the best of the available resources, e.g., fertilisers manures, improved seeds, agricultural implements, pesticides and water, a marked headway in improving yields can be made particularly in respect of commercial crops which are directly or indirectly of export importance

(Para 30).

14. (e) **Conservation of supplies**—Efforts are also called for, for conserving what we produce. Substantial quantities can be saved out of production, if adequate and economic storage facilities are provided. Another avenue of saving is from economics in seed rates.

(Paras 31—33).

15. (f) **The pull of domestic demand**—Our exports did not keep pace with production in many cases. Apart from castor, groundnut and linseed oils and groundnut and linseed cakes, exports can be said to constitute insignificant proportions of the production of oilseeds and their products. Among other commodities only black pepper and sugar have shown a predilection towards exports. The spurts in sugar exports during the last two years were quite exciting and promising, but the lustre has somewhat worn off in 1963-64 and may not revive in 1964-65.

(Paras 35, 38 and 39).

सत्यमेव जयते

16. In a number of cases the export percentage fell in one or more years since 1955-56 with a rise in the production, e.g., tobacco, linseed, cashew kernels, pulses, chillies, fish and fish products.

(Para 41).

17. (g) **Per capita availability trends**—If we analyse the factor, pull of domestic demand' further, we find that it is not due only to a rise of population but it also reflects a rising rate of demand due to rise in incomes. Statistics of per capita domestic availability show that it has been generally upward in several cases, viz., potatoes, tobacco (except in 1960-61), groundnut, rape and mustard oil.

(Para 43).

18. There is, thus, need to take measures, obligatory or economic, to ensure the flow of available supplies in the desired directions. Exports should receive priority in respect of commodities whose levels of consumption are not short of the requirements of a balanced diet, e.g., sugar and those which are not essential and have a good foreign demand, e.g. tobacco, cashew kernels, chillies, black pepper. Consumption can be pegged at certain appropriate levels in such cases. It is only a planned level of consumption on these scientific lines that can release commodities for exports according to our export needs and foreign demands. It must be borne in

mind that these markets can be held not by fluctuating but only by assured exports. Scientific planning postulates a determined, long-term policy and decisions which may be inconvenient or unpalatable but nevertheless in the interests of the country, as a whole.

(Paras 46 and 47).

19. **Exportability (a) Factors of exportability**—Exportability depends on the existence of actual or potential external demand and the relative competitiveness. The factors which influence exportability are multifarious, world-wide and changing.

(Para 48).

20. (b) **Demand**—There has been an all-round expansion in the world demand of many agricultural products during recent years. Our exports of many commodities, e.g., pepper tobacco, wool, oilseeds, oils, oilcakes and groundnut meal have not kept pace with the world demand with the result that their shares in world exports have been declining.

(Para 49).

21. In order to develop exportability, a thorough knowledge of the overseas demand is needed. A continuous study of the trends and projections of demand in the traditional and new markets is the sine qua non of an effective programme of export expansion. We should send delegations to overseas countries to investigate into the potentialities for the sale of our export products. These delegations should consist of not only commodity specialists but also of others who can supplement their talents in an essential chain of enterprise.

(Paras 50 and 51).

22. (c) **Adaptation of the productive system (i) Production pattern**—Crop planning should be done in order to achieve a proper balance between production for domestic and export needs and secure the best returns from the agricultural resources. Planning need not always be physically enforced; preferences and incentives often succeed in breaking down the barriers of resistance more efficiently than legal regulation.

(Para 52).

23. (ii) **Dehydration and Processing**—Dehydration and processing should be extended to commodities like potatoes, banana, garlic, onion. As between raw products and processed goods, the aim should be to export processed goods, as they fetch a high rate of return and foster other economic activities in the country. A composite view of export performance, potentialities and policies should be taken of the raw materials and their products. The aim should be to earn the largest foreign exchange from a group of commodities and not necessarily from each of them separately and to restrict the export of primary products to the unavoidable. Ways and measures may be devised for improving the competitive strength of the processing industry.

(Para 54).

24. (a) **Marketing improvements**—Several marketing improvements, such as fumigation, cold storage, refrigerated shipping should be undertaken. Compulsory quality control and pre-shipment inspection should be introduced as early as possible for the remaining agricultural export commodities. A genuine consciousness and conscientiousness about the importance of quality and honesty in trade and also about the need for raising

the standard of quality right from the stage of production has to be developed. Cooperative marketing should be encouraged. When cooperatives are unable to deliver the goods, there should be no hesitation in supplementing or supplanting them. There is need for setting up trade offices in countries where they do not exist in order to improve the publicity of our exports.

(Paras 56—63).

25. (e) **Price factor**—Prices of many good, which India exports are out of line with world prices, Crop planning and regional and purposive specialisation should make for lower costs of production.

(Paras 64 and 65).

26. Agricultural cess has become an anachronism and should be abolished.

(Para 66).

27. Research in export crops should be intensified in order to evolve methods of lowering costs of production and improving quality and to discover new uses of by-products, such as meat, rice, cotton seeds and tobacco seeds. This could yield considerable economic returns, lower the costs of production and augment the supply of goods for internal use as well as export. The economic utilisation of by-products may bring about a significant change in the economy of the commodity and, as such, may prove to be valuable agent of export promotion.

(Para 67).

28.(f) **Co-ordination with imports**—While emphasising export expansion the need for import substitution should not be overlooked. The foodgrain crops and some commercial crops, like jute and cotton, offer good opportunities for import substitution.

(Paras 68-69).

29. **Maximisation of export earnings**—The relative profitability of commodities from the point of view of unit value and per acre yield of foreign exchange should be taken into account in formulating export policies. An analysis on these lines may induce a better sense of proportion and priorities in devising export promotion measures and may be of inesteemable value in achieving the objective of export expansion.

(Paras 70—72).

ROLE OF THE GOVERNMENT

30. Vigorous efforts have been made during recent years to invigorate the export sector and the results have been gratifying. During the Fourth Plan, exports have to be stepped up by 40 per cent which is twice the rate of rise in the Third Plan. The task is a gigantic one, particularly, in the light of difficulties and efforts involved. If concerted efforts are made keeping in view the present trend of international trade on bilateral lines, significant improvements can be made with a large number of countries, in Europe and East Asia. Concerted efforts are needed in several directions.

(Paras 74-75).

31. Indian yields are extremely low. Technological progress has the effect of contracting the demand for raw materials. Quality has to be improved. Market knowledge and experience are inadequate. Then there are trade barriers. The most difficult problem is the maintenance of a

balance between the domestic and export sectors. Sacrifices in consumption and in revenue will have to be faced. These are all matters which only a firm, determined and planned policy can solve.

(Para 76).

32. Foreign demand as well as methods of production and sale in countries which are our competitors have to be studied. Gaps in the availability of statistical data on production and exports have to be removed. Policies have to be constantly reviewed and steps taken to ensure their implementation. Government intervention in the market may be needed to ensure the flow of supplies in the export channels to the required extent. A wide range of other measures—production incentives, acreage payments, price differentials, export quotas, subsidy payments—may have to be taken.

(Paras 77 and 80).

33. We have to realise that exports are the symbol of development and that everyone has a part to play in making a success of export programmes and policies. The State Governments should associate themselves more actively with the national export effort. Educative and publicity programmes have to be intensified in order that this export consciousness may permeate throughout the whole process.

(Para 81).

सत्यमेव जयते

APPENDIX I

Export earnings from Agricultural commodities during the I & II Plan periods (Annual Averages) and 1961-62 *to* 1963-64

Commodity	Export earnings (Rs lakhs)					Indices				
	First Plan (annual average)	Second Plan (annual average)	1961-62	1962-63	1963-64	First Plan (annual average)	Second Plan (annual average)	1961-62	1962-63	1963-64
1	2	3	4	5	6	7	8	9	10	11
1. Fish fresh	3,94	5,04	3,91	4,09	5,71	100	128	99	104	145
2. Fruits & Vegetables (including cashew kernels)	15,68	21,25	25,51	27,08	29,69	100	136	163	173	189
3. Sugar	21	3,36	14,55	17,38	25,74	100	1600	69,29	82,76	12,257
4. Coffee	2,51	6.97	9,01	7,28	8,30	100	278	359	290	331
5. Tea	106,77	128,31	122,40	129,66	123,19	100	120	151	121	115
6. Spices	17,14	10,99	17,57	13,92	15,82	100	64	103	81	92
7. Oilcakes	13,86	10,07	17,32	32,41	35,57	100	73	125	234	255
8. Tobacco (unmanufactured) . .	12,52	14,00	14,95	18,87	21,01	100	112	119	151	168
9. Skins, raw	6,58	8,30	8,25	10,88	9,60	100	126	125	165	146
10. Wool, raw	7,50	9,69	8,42	5,70	6,13	100	129	112	76	82
11. Cotton, raw	16,46	11,58	14,32	12,23	12,11	100	70	87	74	74
12. Cotton, waste	9,32	5,17	5,25	4,37	4,41	100	55	56	47	47
13. Bones	2,34	2,32	2,91	2,93	2,26	100	99	124	125	97
14. Lac (including gum and resins) .	10,27	6,73	6,64	7,38	8,03	100	66	65	72	78
15. Vegetable oils (non-essential) . .	21,68	11,19	5,83	13,26	19,75	100	52	27	61	91
16. Vegetable oils (essential) . .	1,91	2,70	4,51	4,29	2,87	100	141	236	225	150
Total of agricultural commoodities .	248,69	257,67	281,35	311,73	329,99	100	104	113	125	133
Total of all commodities	604,33	608,93	679,46	709,98	794,12	100	101	112	117	137
Share of agricultural commodities in total export earnings (percentages) . .	41	42	41	44	42	100	102	100	107	102

Source:—1. Commerce dated 9-11-63 (p. 786)
2. Monthly Statistics of the Foreign Trade of India (for 1963-64).

APPENDIX II

Relative importance of Agricultural Exports to total exports in certain countries during certain years

	Agricultural	Exports	as percentage of	Total	Exports (Value)
	1962	1961	1960	1959	1958
Well Developed					
U. S. A.	25·0	26·5	25·9	24·7	23·4
Canada	36·0	37·8	35·6	37·7	39·5
New Zealand	96·0	98·7	96·5	95·5	96·6
Australia	77·0	74·0	78·0	80·9	77·3
France	18·0	19·9	18·5	19·1	18·2
Italy	17·0	17·1	17·9	21·1	22·8
Less Developed					
Japan	11·0	11·0	11·5	13·6	13·7
Brazil	92·0	85·9	88·4	88·2	89·4
Greece	82·0	81·0	81·3	85·7	86·4
Egypt	71·0	75·7	81·4	79·3	83·5
India	43·0	45·6	44·0	46·2	47·7
Burma	95·0	95·1	93·0	94·4	94·7
Continents					
Europe	17·0	17·5	17·8	18·7	19·6
N & C America	27 0	29·5	28·7	28·5	27·6
S. America	50·0	49·7	50·2	50·4	89·0
Asia	38·0	36·4	38·1	41·7	43·0
Africa	57·0	59·3	59·1	58·5	74·3
Oceania	81·0	80·4	83·6	85·1	83·0
World	26·0	27·5	27·9	29·6	30·1

Source:—Trade Year Book, F. A. O, Rome,

APPENDIX III

Annual fluctuations (% change over the preceding year) in the volume of exports of important agricultural commodities during the decade ending 1963-64.

Commodities	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Pulses	+ 1,800	+ 295	— 89	..	— 50	+ 100	..	— 13	+ 43	+ 60
Cashew kernels	+ 14	— 11	+ 3	+ 16	+ 11	— 5	+ 13	— 5	+ 17	+ 4
Walnuts	+ 16	— 39	+ 14	+ 23	+ 12	— 43	+ 87	— 2	— 6	+ 9
Onion	+ 21	+ 3	+ 50	+ 11	— 100	+ 5	+ 19	+ 14	— 6	— 4
Garlic	+ 194	— 67	+ 1	+ 17	— 19	+ 60	+ 50	+ 25	— 45	— 69
Potatoes	..	..	..	..	+ 70	+ 256	— 6	— 43	+ 109	— 155
Fish & Fish Products	— 12	— 16	+ 13	— 16	+ 47	+ 5	— 35	— 21	— 31	+ 64
Sugar	+ 653	+ 136	+ 40	+ 301	— 74	— 55	+ 232	+ 390	+ 40	+ 28
Black Pepper	+ 17	— 7	+ 15	..	— 7	+ 7	+ 13	+ 29	— 4	+ 10
Chillies	..	+ 60	— 87	+ 200	+ 67	— 60	+ 300	+ 37	— 55	+ 140
Ginger	..	— 33	+ 400	..	— 40	— 50	+ 100	+ 33	— 25	— 17
Tobacco	+ 23	+ 4	+ 7	— 5	+ 12	— 13	+ 15	— 4	+ 36	+ 5
Raw wool	+ 49	+ 10	— 2	+ 13	— 3	+ 20	— 35	+ 21	— 30	+ 2
Oilseeds										
Groundnuts	+ 333	+ 16	— 98	+ 247	+ 1,167	+ 18	+ 98	— 21	+ 7	— 10
Rape seed & Mustard seed	— 23	+ 124	*	..	*	— 56	+ 9	— 72	+ 2,671	+ 23
Sesamum seed	@	*	..	@	*	+ 98	— 78	+ 178	+ 103	+ 147
Linseed	..	*	+ 100	@	*	+ 150	— 60	— 50	..	..
Castor seed	..	..	..	..	..	..	..	..	..	..
Total	+ 324	+ 29	— 98	+ 245	+ 1,184	+ 19	+ 95	— 21	+ 8	— 7

Oils										
Groundnut oil	+ 6,598	+ 24	— 99	— 97	+ 2,6955	+ 611	— 97	+ 596	+ 750	+ 68
Rape and Mustard Oil	+ 46	+ 72	— 89	+ 214	— 22	+ 21	— 14	— 17	— 7	+ 10
Sesamum oil.	*	*	— 92	— 99·7	+ 45,100	— 72	— 94	— 14	+ 50	+ 344
Linseed oil	+ 168	+ 701	— 60	— 38	— 31	+ 24	— 61	— 94	+ 89	— 16
Castor oil	+ 67	+ 21	+ 11	— 14	— 51	+ 152	..	— 47	+ 21	+ 17
Total	+ 477	+ 75	— 69	— 25	— 34	+ 166	— 47	— 41	+ 175	+ 50
Oil-cakes										
Groundnut cake	+ 1,596	+ 229	— 87	+ 176	+ 220	+ 45	— 78	+ 39	+ 4	— 43
Rape & Mustard cake	..	*	— 95	@	..	*	@	..	..	..
Sesamum cake	— ..	..	*	— 57	+ 965	+ 191	— 64	— 83	+ 544	+ 14
Linseed cake	*	+ 123	— 66	— 8	+ 101	+ 1,034	— 52	— 82	+ 323	— 53
Castor cake	..	*	— 79	@	..	*	@	..	..	..
Defatted groundnut meal	..	..	*	+ 988	+ 294	+ 67	+ 7	+ 28	+ 77	+ 13
Total	+ 1,882	+ 257	— 83	+ 287	+ 256	+ 83	— 27	+ 18	+ 74	+ 6
Lac	..	+ 7	..	— 7	— 4	+ 4	..	— 22	..	..
Essential Oils	+ 29	+ 10	+ 16	+ 32	— 14	— 18	+ 25	— 23	+ 32	— 32

..—Nil or negligible

@No exports.

*No exports during the preceding year.

APPENDIX IV

Value per tonne realised by Exports during the decade ending 1963-64

Crops	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
1. Pulses	407	379	584	477	790	498	726	784	841	806
2. Cashew kernels	488	766	834	695	600	745	812	658	587	N.A.
3. Walnuts	2,193	2,930	2,603	2,452	2,452	2,965	3,160	2,759	2,495	2,648
4. Onions	264	257	301	344	261	257	213	256	248	283
5. Garlic	784	671	977	821	1,117	1,133	652	935	1,125	744
6. Potatoes	..	..	..	552	397	439	383	426	418	407
7. Sugar*	N.A.	N.A.	N.A.	809	496	489	454	496	397	675
8. Pepper	4,992	3,622	2,263	2,043	2,058	3,886	4,939	3,737	3,152	3,112
9. Chillies	2,157	1,806	1,831	1,740	1,225	2,200	2,102	1,875	1,940	2,317
10. Ginger	2,311	4,542	1,683	929	600	2,100	1,566	1,434	1,975	2,904
11. Tobacco	3,017	2,662	2,883	3,574	3,180	3,422	3,191	3,159	2,987	3,315
12. Raw cotton	2,962	2,349	2,821	2,231	1,866	2,209	2,653	2,181	2,085	2,170
13. Raw wool	6,150	6,486	6,734	6,599	5,649	5,761	5,618	5,785	5,522	5,992
14. Groundnuts	1,084	977	439	266	848	857	1,019	1,042	998	1,044
15. Rape & Mustard seed	890	668	..	..	962	913	680	1,143	1,222	1,096
16. Sesamum seed	..	939	..	..	870	960	1,505	1,102	1,218	1,143
17. Linseed	..	1,000	1,000	..	1,000	800	500	1,000	1,000	1,000
18. Groundnut oil	1,257	1,237	1,501	1,750	1,393	1,366	2,129	1,516	1,356	1,384
19. Rape & Mustard oil	1,861	1,556	2,098	2,370	2,177	2,223	2,313	2,608	2,661	2,600
20. Sesamum oil	..	1,358	1,655	1,000	1,522	1,677	2,714	3,167	2,667	1,600
21. Linseed oil	1,125	1,147	1,657	1,090	1,394	1,392	1,291	2,033	1,721	1,406
22. Castor oil	1,080	1,038	1,552	1,768	1,463	1,406	1,436	1,606	1,424	1,358
23. Groundnut cake	432	368	380	279	351	386	357	361	390	377
24. Sesamum cake	..	..	330	291	331	305	284	314	328	342
25. Linseed cake	309	322	359	295	375	401	342	383	364	358
26. Defatted groundnut meal	..	..	302	1,176	335	366	333	350	360	380
27. Lac	3,907	4,038	3,262	2,541	2,190	2,331	2,341	2,198	2,284	2,238
28. Lemongrass oil	17,502	16,349	14,535	10,741	7,807	11,869	17,455	25,937	21,197	15,931

*Relate to calendar years—the figures for 1957-58 relate to 1957 and so on.

N.A.—Not available.

..—: Nil or negligible exports.

APPENDIX V

Indices of movements of production and volume of Exports of principal commodities in certain years.

Commodity	PRODUCTION						EXPORTS					
	1950-51	1955-56	1960-61	1961-62	1962-63	1963-64	1950-51	1955-56	1960-61	1961-62	1962-63	1963-64
1. Pulses	100	131	150	136	136	117	..	100	11	9	13	21
2. Cashew kernels	N.A.	100	150	160	170	N.A.	100	86	122	117	136	142
3. Onions	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	100	..	175	200	188	181
4. Potatoes	100	112	165	151	189	149	..	..	..	..	..	..
5. Fish & fish products	100	103	142	118	119	N.A.	100	110	105	84	58	95
6. Sugar	100	157	281	252	198	246	100	867	1,933	9,467	13,267	14,400
7. Black pepper	100	133	133	133	124	114	100	87	113	147	140	127
8. Chillies (dry)	100	103	106	107	111	118	100	267	267	367	167	400
9. Ginger (dry)	100	114	121	121	121	143	100	150	300	400	300	250
10. Tobacco	100	116	120	133	141	129	100	98	112	107	146	154
11. Raw cotton	100	137	185	155	183	189	100	8,742	4,143	4,571	4,771	4,471
12. Raw wool	100	116	116	122	123	N.A.	100	125	108	125	92	71
13. Groundnut	100	111	128	135	132	152	100	73	132	103	111	100
14. Rape & Mustard Seed	100	113	178	175	170	119	..	..	..	..	..	..
15. Sesamum	100	105	72	85	102	92	100	300	..	..	100	100
16. Linseed	100	114	108	124	116	105	..	..	..	..	..	..
17. Castor seed	100	121	88	98	100	98	..	..	..	..	..	..
18. Oil seeds	100	111	128	135	133	138	100	16	26	20	23	20

APPENDIX V—*contd.*

Commodity	PRODUCTION						EXPORTS					
	1950-51	1955-56	1960-51	1961-62	1962-63	1963-64	1950-51	1955-56	1960-61	1961-62	1962-63	1963-64
19. Groundnut oil	100	113	131	141	137	159	100	198	2	11	91	152
20. Rape & Mustard oil . .	100	114	188	180	172	122	..	..	..	..	..	..
21. Sesamum oil .	100	105	66	80	104	93.	..	..	..	..	..	..
22. Linseed oil .	100	117	109	110	122	106	100	1,367	117	..	17	17
23. Castor oil .	100	628	457	500	514	500	100	154	181	96	120	135
24. Vegetable oils	100	116	134	140	140	142	100	265	57	33	93	137
25. Groundnut cake	100	113	131	141	138	159	..	100	359	466	790	858
26. Rape & Mustard cake . .	100	114	186	179	172	121	..	100	..	..	..	..
27. Sesamum cake	100	106	73	81	104	93	..	100	..	..	..	..
28. Linseed cake .	100	118	111	110	123	107	..	100	354	64	263	127
29. Castor cake .	100	740	540	600	610	600	..	..	..	..	..	..
30. Oilcakes .	100	116	138	142	143	141	..	100	316	372	645	689
31. Lac . .	100	124	139	103	89	N.A.	100	85	79	62	62	62
32. Lemongrass oil	100	178	253	231	N.A.	N.A.	100	159	230	176	243	154
33. Sandalwood oil	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	100	104	129	121	95	107

N.A.—Not available.

.. —Nil or negligible.

APPENDIX VI

Percentage of exports to supplies (Production + Imports)

Commodity	1950-51	1955-56	1960-61	1961-62	1962-63	1963-64
1. Pulses	..	0·68	0·06	0·06	0·09	0·16
2. Cashew kernels	N.A.	88·57	73·33	73·68	69·86	N.A.
3. Potatoes	..	..	0·44	0·27	0·48	0·53
4. Fish & fish products	2·32	2·50	1·72	1·62	1·10	N.A.
5. Sugar	..	..	1·91	10·46	18·51	16·29
6. Black pepper	71·42	46·43	60·71	78·57	80·76	79·17
7. Chillies (dry)	0·95	2·21	2·15	2·93	1·29	2·91
8. Ginger (dry)	14·21	18·75	35·29	47·06	35·29	25·00
9. Tobacco	15·55	13·11	14·74	12·61	16·35	19·35
10. Raw cotton	0·17	13·10	4·31	5·87	5·40	5·05
11. Raw wool	44·78	49·35	40·57	47·24	32·52	N.A.
Oilseeds						
12. Groundnuts	1·06	0·70	1·09	0·81	0·89	0·70
13. Rape seed & Mustard	..	..	..	..	..	..
14. Sesamum	0·22	0·64	..	..	0·22	0·25
15. Linseed	18·53	..	..	..	..	..
16. Castor seed	77·67	..	..	..	..	..
17. All oilseeds	3·61	0·52	0·74	0·55	0·61	0·54
Vegetable oils						
18. Groundnut	8·41	14·78	0·10	0·65	5·13	8·04
19. Rape & Mustard	..	0·39	..	..	..	..
20. Sesamum	..	2·76	..	..	..	..
21. Linseed	5·66	66·12	6·03	..	0·78	0·89
22. Castor	..	90·90	147	71·43	83·33	100·00
23. All Oils	7·77	17·78	3·32	1·84	5·13	7·52
Oilcakes						
24. Groundnut	..	7·45	23·04	27·79	48·04	45·47
25. Rape & Mustard	..	2·73	..	..	..	..
26. Sesamum	..	..	0·63	..	0·47	1·04
27. Linseed	..	4·45	16·74	3·02	11·24	6·22
28. Castor	..	1·35	..	..	..	..
29. All Oilcakes	..	5·21	13·84	15·81	27·40	29·63
30. Lac	89·47	61·70	50·94	53·84	61·76	N.A.
31. Lemongrass Oil	98	87	89	75	N.A.	N.A.

..—Nil or Negligible.

N.A. — Not available.

APPENDIX VII

Per capita domestic retention of the supplies (Production + Imports) of certain crops during certain years and indices of its movements with 1950-51 *as base*

Commodity	Actual per capita (gram) domestic retention						Indices Base Year : 1950-51				
	1950-51	1955-56	1960-61	1961-62	1962-63	1963-64	1955-56	1960-61	1961-62	1962-63	1963-64
1. Pulses	23,297	27,423	28,797	26,055	26,091	22,454	118	124	112	112	96
2. Cashew kernels . .	N.A.	10	36	34	N.A.	N.A.	100	360	340	N.A.	N.A.
3. Fish and fish products .	2,218	2,050	2,666	2,200	2,266	..	92	120	99	102	N.A.
4. Potatoes . . .	4,598	4,647	6,229	5,792	7,094	5,594	101	135	126	154	122
5. Sugar	3,000	4,390	6,767	5,534	3,990	5,056	146	225	184	133	169
6. Black pepper . . .	17	38	25	14	11	11	224	147	82	65	65
7. Chillies (dry) . . .	964	882	829	831	875	913	91	86	86	91	95
8. Ginger	33	35	25	20	25	34	106	76	61	76	103
9. Tobacco . . .	618	662	606	695	702	617	107	98	112	113	100
10. Groundnut . . .	9,039	9,587	10,048	10,584	10,365	11,966	106	111	117	114	132
11. Rape & Mustard seed .	2,110	2,150	3,088	3,045	2,959	2,070	102	146	144	140	98
12. Sesamum . . .	1,230	1,160	731	863	1,029	932	94	59	70	84	76
13. Linseed	828	1,050	900	1,039	973	877	127	109	125	118	106
14. Castor seed . . .	64	312	207	230	235	230	487	323	359	367	359
15. Total oil seeds . .	13,773	14,259	14,975	15,760	15,560	16,074	104	109	114	113	117
16. Groundnut oil . .	1,931	1,830	2,273	2,426	2,237	2,528	95	118	126	116	131
17. Rape & Mustard oil .	621	637	957	918	879	622	103	154	148	142	100
18. Sesamum oil . .	382	352	207	251	326	292	92	54	66	85	76
19. Linseed oil . . .	277	105	257	266	292	253	38	93	96	105	91
20. Castor seed oil . .	..	10	*	23	13	..	100	..	230	130	..
21. Total vegetable oil . .	3,158	2,935	3,651	3,883	3,747	3,694	93	116	123	119	117

N.A.—Not available.

* Export were more than production.

.. = Nil or negligible.

N.B.—Population as at the time of 1951 census has been used for working out per capita figures of 1950-51, that of 1961 for the year 1960-61 to 1962-63. For 1955-56, a mean of the populations at the two censuses has been used.

APPENDIX VIII

Movements of world imports (in value) of important agricultural commodities and India's share in them during certain years

Commodity	Index numbers with 1948-52 = 100					India's percentage share in world imports					
	1958	1959	1960	1961	1962	1948-52	1958	1959	1960	1961	1962
1. Pulses	110	144	138	119	137	0·08	0·58	0·55	0·68	0·70	0·88
2. Onions	134	139	134	137	151	7·21	8·64	9·62	11·55	13·65	13·50
3. Potatoes	135	130	122	117	165	..	0·01	0·56	0·48	0·35	0·24
4. Sugar	132	124	149	163	149	0·27	0·31	0·16	0·12	1·81	2·36
5. Pepper	172	203	169	185	125	36·07	19·05	13·71	24·27	23·89	32·40
6. Tobacco (unmanufactured)	118	118	128	142	138	7·10	6·85	5·44	5·35	5·68	7·67
7. Wool	106	126	121	130	126	1·33	1·32	1·37	1·02	1·02	0·79
8. Rape & Mustard seed	393	373	345	375	567	0·15	0·04	..	..	..	..
9. Groundnuts (shelled basis)	165	152	131	168	164	7·06	0·24	2·11	3·33	2·94	2·88
10. Sesamum seed	130	167	237	210	229	1·85	..	0·34	0·18	0·20	0·04
11. Linseed	136	151	152	161	117	9·87	..	..	..	..	..
12. Groundnut oil	159	165	170	150	199	26·54	0·31	13·95	0·55	0·55	9·39
13. Rapeseed oil	102	129	88	41	85	25·61	0·71	0·57	0·28	..	..
14. Linseed oil	110	127	112	125	130	7·09	9·13	6·82	2·80	0·11	0·35
15. Castor oil	177	194	194	260	231	42·71	24·23	38·39	44·84	19·04	23·42
16. Cotton seed oil	165	389	328	254	261	..	1·97	..	..	..	..
17. Oilcakes and meal	..	122	116	124	135	N.A.	5·72	10·37	9·52	9·30	1·93

N.A. — Not available.

.. =Nil or negligible.

CHAPTER II

OILSEEDS, VEGETABLE OILS & OILCAKES

1. Oilseeds, oils and oilcakes constitute the most important items of agricultural commodities from the export point of view. The value of their exports rose from Rs. 17 crores in 1958-59 to Rs. 36 crores in 1959-60 but came down to about Rs. 26 crores in 1960-61 and stayed nearly at that level during 1961-62 also. The value went up to about Rs. 46 crores during 1962-63 and further to about Rs. 54 crores in 1963-64.

2. The existing export policies with regard to oilseeds, oils and oilcakes are as follows:—

Exports of (i) linseed, (ii) cottonseed, (iii) copra and (iv) castorseed are not being allowed for some time past. Exports of groundnut kernels were licensed freely on shipping bills by the port licensing authorities till 15-7-1964. From 16-7-64 to 25-11-64, their exports remained banned. From 26-11-64 to 31-12-64, their exports were licensed freely on shipping bills by the port licensing authorities. With effect from 1-1-1965, their export is banned. Exports of groundnut-in-shell were licensed freely on shipping bills by the port licensing authorities till 15-7-1964. With effect from 16-7-1964, their export is banned. Exports of (i) sesamum seed, (ii) kardi seed and (iii) niger seed were decontrolled till the middle of July, 1964. Since then they have been banned. Exports of rape and mustard seed were licensed freely on shipping bills by the port licensing authorities till 15-7-1964. With effect from 16-7-1964, their export is banned. Regarding vegetable oils, export of (i) linseed oil and (ii) castor oil has remained decontrolled for some time past. Exports of rape and mustard oil were licensed freely on shipping bills by the port licensing authorities till 16-7-1964. With effect from 17-7-1964, its export is banned. Export of groundnut oils, sesamum oil, kardi seed oil, niger seed oil, cotton seed oil, salad oil, coconut oil, and hydrogenated oil was decontrolled till 10-7-1964. During 11-7-1964 to 16-7-1964, the exports were allowed on merits. With effect from 17-7-1964, their exports are banned. These restrictions on the exports of various edible oilseeds and oils have been imposed on account of high internal prices. It is hoped that this is only a passing phase and the export policy will be liberalised as soon as the price situation improves. Regarding oilcakes, the exports of groundnut cake of the expeller variety are not allowed. The exports of (i) linseed cake and (ii) coconut cake are licensed freely on shipping bills by the port licensing authorities. The exports of other types of oilcakes are decontrolled.

3. As an incentive to exports of vegetable oils, licences to import copra/palm oil are given against the exports of certain vegetable oils as shown below—

Vegetable oil	Import of copra/palm oil allowed
Raw castor oil	15%
Refined castor oil	20%
Raw linseed oil	60%
Double boiled, triple boiled linseed oil	70%

A small percentage of import entitlement is also permitted to be utilised for import of mutton tallow, machinery and spares and chemicals.

EXPORT TRENDS

4. A notable development in the export structure of this group of commodities has been a rise in the importance of oilcakes and a decline in that of oils. The export of oilcakes used to be negligible till 1953-54. In 1954-55 we exported Rs. 1.4 crores worth of oilcakes, which accounted for about 7 per cent of export earnings from this group of commodities during the year. The importance of oilcakes has been rising progressively since 1956-57 and during 1958-59 to 1962-63 they accounted for 50 per cent to 64 per cent of export earnings from this group of commodities whereas in the preceding six years their share had never exceeded 23 per cent. This has taken place at the cost of vegetable oils, the relative importance of which has been progressively declining. The contribution to our export earnings from this source ranged between 20 per cent and 33 per cent during the years 1958-59 to 1962-63 as compared with 70 per cent to 92 per cent in the preceding six years.

5. **Quantity and Value**—Figures showing the exports of major export oilseeds, oils and oilcakes from India during the decade ending 1963-64 are given in Appendices I, II and III. We exported 38,5 thousand tonnes of these oilseeds and earned about Rs. 4 crores of foreign exchange during 1963-64. During 1962-63, we exported 41.5 thousand tonnes and earned Rs. 4.2 crores of foreign exchange. Thus, the trend during 1963-64 has been lower.

6. Among oilseeds, only HPS groundnut, either in shell or as kernel, has been figuring in our export trade to any significant extent. The quantum of its exports rose by 173 per cent during the triennium ending 1962-63 as compared with the preceding one. There is an apprehension in certain quarters that exports of groundnut-in-shell might enable foreign countries to grow groundnuts and to compete with us in foreign markets. Such fears are unjustified as India is not the only producer of groundnuts. No restrictions need, therefore, be put on the exports of HPS groundnuts. Their export yields a handsome amount of foreign exchange and we should do everything possible to encourage it.

7. We exported 88.8 thousands metric tons of vegetable oils valued at Rs. 12.3 crores during 1962-63. The quantum of their exports fluctuated between about 32 thousand metric tons and 254 thousand metric tons during this decade. During 1963-64 the tempo went up appreciably and we were able to export about 133 thousand tonnes and earn 18.4 crores of rupees which is about 50 per cent higher than that in the preceding year. Export earnings from vegetable oils displayed violent fluctuations, viz., between 5.2 and 14.4 crores during the quinquennium ending 1962-63. By far the most important from the export point of view is castor oil, which accounted for 55 per cent and 59 per cent of the value of exports of the three oils during the triennium ending 1959-60 and 1962-63 respectively. The next in importance is groundnut oil, whose share has risen to about 36 per cent during the later triennium from about 21 per cent during the preceding one. On the other hand, the share of linseed oil in our export earnings from vegetable oils has dropped from about 23 per cent to about 4 per cent during the corresponding period.

8. The exports of most of our vegetable oils have been showing a downward trend. The exports of groundnut oil declined after 1955-56 on account of the restricted policy adopted by the Government. These restrictions were relaxed after 1960-61 in order to augment foreign exchange earnings. Consequently, the volume and value rose in 1962-63.

9. Exports of castor oil have received a severe setback because of uncompetitive prices. The problems connected with the export of castor oil were recently gone into by a special Committee set up by the Board of Trade. A summary of the recommendations of this Committee is given in Appendix IV. The Committee has come to the conclusion that it is possible to increase the production of castor seeds considerably. A recommendation made by this Committee for this purpose is that one or two rows of castor seed should be grown after every 8—10 rows of groundnut. Fears have been expressed in certain quarters that this might lead to an admixture of the seeds and oils of castor and groundnut. This point was recently gone into by the Ministry of Food and Agriculture, and it has been decided not to encourage the growing of castor as a mixed crop with groundnut.

10. The exports of linseed oil have fallen rapidly during the past few years. From an annual average of about 17½ thousand tonnes during the years 1957-58 to 1959-60, they dropped to 6,789 tonnes in 1960-61 and have ranged between 391 and 741 tonnes during the last 3 years. Efforts should be made to increase the exports of linseed oil.

11. There is not much scope for increasing the exports of rape and mustard and sesamum oils. However, we need not impose any restrictions on their exports. Rape and mustard oil is exported mostly to South East and West Asian and African countries for consumption by the people of Indian origin. Similarly, sesamum oil is exported to Aden, Bahrein Islands, Fiji Islands, Malaya etc., for consumption by people of Indian origin.

12. The quantum of the exports of oilcakes came to 7.9 lakh metric tons in 1962-63 as against 4.5 lakh metric tons in 1961-62. During 1963-64, the exports rose further to 8.3 lakh tonnes. The value of their exports came to Rs. 29.6 crores in 1962-63 and Rs. 31.8 crores in 1963-64 as against Rs. 15.9 crores in 1961-62.

13. The most important oilcake from the export angle is defatted groundnut meal which accounted for 55 per cent and 87 per cent of the value of the exports of these oilcakes during the triennia ending 1959-60 and 1962-63. The share of linseed cake dropped from about 11 per cent in the former to about 5 per cent in the latter triennium.

14. **Unit Value**—Figures showing the value realised per tonne by the exports of various oilseeds, oils and oilcakes annually during the quinquennium ending 1963-64 are given in Appendix V. During 1963-64, the highest unit values were realised, among oilseeds, by sesamum, viz., Rs. 1143. On the other hand, groundnut and linseed fetched only about Rs. 1044 and Rs. 1000 per tonne respectively. Among oils, rape and mustard fetched the highest value, viz., Rs. 2600 and castor and groundnut oils earned the least with about Rs. 1358 and 1384 respectively. Sesamum oil, which fetched Rs. 1600 per tonne, stands in-between. The variation in the export values of oilcakes is much narrow, Rs. 342 for sesamum cake to Rs. 380 per tonne for groundnut meal. Linseed cake, with Rs. 358 per tonne, stands in-between.

15. The unit values show considerable fluctuations from year to year as shown by the following table—

TABLE I

Fluctuations in unit values realised annually by exports

Commodity	Seed	Oil	Cake
Groundnut	857—1,044	1,356—2,129	357—390
Rape and Mustard	680—1,222	2,223—2,664	..
Sesamum	960—1,505	1,600—3,167	284—342
Linseed	500—1,000	1,291—2,033	342—401
Castor	..	1,358—1,606	..

The fluctuations are more marked in the case of rape and mustard seed, sesamum and linseed and linseed and sesamum oils. The unit values in the case of oilcakes fluctuated within comparatively narrow limits.

16. **Destinations**—Figures showing the average annual quantum and value of exports of groundnuts and important oils and oilcakes to different countries during the triennia ending 1959-60 and 1962-63 are given in Appendices VI to VIII. The principal countries which bought our groundnuts were the same in both triennia, viz., U.K., Poland, Netherlands, Czechoslovakia, West Germany and Canada. But their relative importance became different in the later triennium as the rise in the quantum of their imports varied greatly, viz., from 545 per cent to 1859 per cent in the case of Poland, Czechoslovakia and West Germany and from 93 per cent to 108 per cent in the case of U.K. and Netherlands. On the other hand, we lost some ground in Canada. As a result of changes in quantum and unit values, the relative contributions of importing countries to our foreign exchange earnings from groundnuts have declined in the second triennium in the cases of Canada (20.8 per cent to 5.2 per cent), Netherlands (25.8 per cent to 17.2 per cent) and U.K. (35.3 per cent to 28.7 per cent). They have gone up in the case of Poland, Czechoslovakia and West Germany from 3.9 per cent to 9.8 per cent, 1.2 per cent to 8.8 per cent and 2.8 per cent to 7.7 per cent respectively.

17. The direction of our trade has undergone a radical change in the case of mustard. In the later triennium we did not export at all to any of the traditional countries, viz., Kenya, Singapore, Malaya and Hungary, except a small quantity to Kenya. On the other hand, West Germany, Belgium and Netherlands emerged as the most important buyers contributing over 84 per cent of our earning from this source. Thus, we have lost all our traditional markets for this commodity and our entire exports, which have expanded during this period, are made to new countries. We should try to recover the traditional markets.

18. Our exports of groundnut oil have advanced in several countries during the later triennium. The quantum has risen appreciably in respect of West Germany, Aden, Bahrein Islands, Muscat, Australia, Hong Kong and U.K., viz., from 24 per cent to 639 per cent. We exported about 20,000 metric tons of groundnut oil to Spain for the first time in 1962-63 and earned Rs. 270 lakhs worth of foreign exchange. Our exports to Burma dropped from 15,000 metric tones to 3,473 metric tons and those to Netherlands from 9,656 metric tons to 3,424 metric tons or by 77 per cent and

65 per cent respectively. The fall was proportionately greater in the case of Malaysia but the absolute quantities were much smaller. The unit values moved up in all cases, except U.K. and Aden. As a result of these changes, the contributions of Burma and Netherlands have fallen from 35 per cent and 50 per cent to 6 per cent and 5 per cent respectively. On the other hand, the contributions of Australia, Hongkong, West Germany and U.K., which together contributed about 17 per cent in the previous triennium, went up to 42 per cent in the later triennium. Spain which imported our groundnut oil only in one year during this period, contributed about 30 per cent of our export earnings during the second triennium.

19. The directional pattern of castor oil exports has been marked by a general decline in the quantum. There has been a marked decline in the case of Netherlands and U.S.A., the most important buyer during the later triennium. On the other hand, there was an appreciable rise in the case of U.S.S.R. The unit values sagged generally. As a result, the relative contributions to the value of our castor oil exports fell in the case of U.S.A. from about 31 per cent to 13 per cent and rose in the case of U.S.S.R. from 17 per cent to 31 per cent.

20. Some noteworthy trends have occurred in the case of linseed oil. Imports by Australia which imported about 19,000 metric tons of linseed oil in the preceding triennium have dwindled to negligible proportions. The imports of Rumania came down from 1,895 to 1,094 metric tons and those of West Pakistan from 502 to 306 metric tons. A noticeable change occurred in the case of U.K., whose imports came down from about 30,000 to 4,352 metric tons. But as the total quantum fell from 52,462 to 7;921 metric tons or by 85 per cent, the ratio of the contribution of U.K. remained practically stationary, namely, 50—52 per cent and the contributions of Rumania and West Pakistan went up from 4 per cent and 1 per cent to 13 per cent and 6 per cent respectively.

21. The above review reveals that we have lost ground in regard to several countries in respect of mustard seed, groundnut oil and linseed oil. The reasons for this require a close study and efforts should be made to recover the position in as many countries as possible.

22. Of the 6 years under review, we exported linseed cake to a number of countries, namely, Netherlands, Belgium, Poland and France only in 1959-60. Secondly, our exports to practically all the other countries witnessed a decline, ranging between 3 per cent and 39 per cent in respect of U.K., Denmark and West Germany during the second triennium. It is only in East Germany that we were able to push up our exports. Consequently, 43 per cent of our export earnings accrued from this country as against only 3 per cent in the previous triennium. The unit values declined generally.

23. The rise in the exports of defatted groundnut meal has occurred in the case of all countries ranging from 105 per cent to 4967 per cent. We added a number of countries to the list of our export markets for this commodity during the second triennium, namely, Sweden, Hungary, Bulgaria, Japan, France and Spain. Though the unit values declined in respect of most countries and the decline was a marked one in Netherlands, viz., from Rs. 493 to Rs. 371, the overall unit value went up a little because of a marked rise (from Rs. 271 to Rs. 380) in the case of Belgium. The relative contribution of the importing countries to our foreign exchange earnings from this commodity came down in the case of U.K. from 81 per cent to 60 per cent and in the case of Poland from 12 per cent to 11 per cent. The

relative contribution remained practically stationary in the case of West Germany and showed a slight rise in other cases.

EXPORT EXPANSION

24. **Export Supplies**—Figures showing production of oilseeds, oils and oilcakes and the percentage of their export to production for the year 1956-57 to 1963-64 are given in Appendix IX. The production of oilseeds during six of these eight years, i.e., except 1958-59 and 1959-60, varied within a narrow range of 6.4 to about 7 million metric tons. In 1958-59 the production reached an abnormally high figure of 7.3 million tonnes only to drop next year to less than 6 million tonnes, the lowest of the period. Similarly, the production of oils has varied between 1.5 and 1.8 million tonnes and that of oilcakes between 2.5 and 3.0 million tonnes. Thus, on the whole, the production has remained stagnant during this period.

25. Exports constitute a very insignificant proportion of production in the case of oilseeds and oils due to greater utilisation inside the country. The proportion varied during these years between 0.03 per cent and 0.7 per cent in the case of oilseeds and between about 2 per cent and 7.6 per cent in the case of oils. It is only in the case of oilcakes that a substantial proportion of production is exported and exports have been gaining in importance. The quantum of exports as well as the percentage of exports to production of oilcakes went up by about 75 per cent in 1962-63 and recorded a further rise in 1963-64.

26. **Yields**—Figures showing average annual yields of groundnut, rapeseed, sesamum and linseed during the triennium ending 1961-62 in the most important countries producing these oilseeds are given in Appendix X. These present a very depressing picture as far as Indian yields are concerned. Yields in India of each of these oilseeds are the lowest. The average yield of groundnuts is 708 kilograms per hectare in India. As against this, Japan's yield is more than three times, and Nigeria's is more than two times that of India. The differences are more startling in the case of other oilseeds. India produces 421 kilograms of rapeseed per hectare. Except Pakistan, which stands virtually at the same footing, yield in other countries is much higher than that of India, viz., twice as much in Canada, more than three times in Poland, Japan, East Germany and France and more than five times in Sweden. The average yield of sesamum in India is 159 kilograms per hectare. Burma is the only country with a similar yield. In the remaining four countries, given in the Appendix, yields are two to four times those in India. Similarly, the average yield of linseed in other countries is more than two to four times that of India.

27. Vagaries of rainfall have an important effect on the production of oilseeds, as these are mostly grown in non-irrigated areas. For tackling the problems arising from the vagaries of the monsoon, a suitable system of crop insurance in selected areas of production should be introduced. Crop insurance could also be extended to other crops which are similarly placed.

28. There is little scope for increasing the area under oilseeds cultivation. The increased production of oilseeds at low cost should be aimed at by raising the yield per acre through the introduction of better farming practices. Several new varieties of oilseeds which are high-yielding as well as resistant to disease have been evolved. It has not been possible to increase the use of new varieties and improved agricultural practices due to the weaknesses of the extension system. There is need to demonstrate improved methods of oilseeds cultivation to the farmers. The drive for increased production has to be made on many fronts so that the impact on

production is adequate for meeting both the increased domestic requirements and the export demand. There is a ready market for oils and whatever the country can offer for export can be easily marketed.

29. For a sound and systematic development the oil milling industry, which is primarily dependent on agricultural raw materials, it is essential that there should be long-term bonds between the producers and manufacturers for the supply of the raw materials. The manufacturers should also be encouraged to propagate improved methods of oilseeds cultivation in the areas feeding their mills.

30. It is possible to raise considerably the oil extraction percentage in our country by using improved types of expellers. The question of permitting the import of American expellers should be, therefore, examined. There is need to conduct a thorough study of the economics of oil milling with a view to exploring the possibilities of improving the efficiency of the industry and the quality of the oil manufactured.

31. **Export Targets**—Assuming that the requisite increase in production and manufacturing efficiency will be made, the following targets of export may be fixed:—

Commodity	Export Targets	
	III Plan (metric tons)	IV Plan (metric tons)
1. Groundnut	50,000	70,000
2. Groundnut oil	75,000	1,50,000
3. Castor oil	45,000	50,000

32. Though there is considerable opposition to the exports of oilcakes from the Central Council of Gosamvardhana and the cattle feeding industry, any slowing down of these exports would not be desirable. A target of 10 lakh metric tons of oilcakes for export by the end of the Third Five Year Plan and 20 lakh metric tons by the end of the Fourth Five Year Plan would appear to be reasonable. Oilcakes are being bought by the foreign buyers from India mostly for their cattle feed and poultry feed industry. It would be desirable to encourage the setting up of cattle feed industries in India on a substantial scale so that we can earn far more foreign exchange by exporting cattle feed than by exporting oilcakes. Animal nutrition surveys have revealed that cattle feeds in India are not balanced and suffer either from deficiency of carbohydrates and proteins or from excessive proteins. Growth of cattle feed industries will also promote balanced feeding of livestock at economical costs. It is understood some of the indigenous grasses and molasses could be used along with oilcakes for this industry.

33. **Minor Oils**—Certain minor oils are important in our export trade. Medical research indicates that Kardi oil is perhaps the only cooking oil or fat which does not build up cholesterols in the body. Researches have shown that the building up of cholesterols results in heart diseases and thrombosis and we should make an effort to exploit for purposes of our exports the results of this research. Complete and up-to-date statistics of area and production of safflower seed & niger seed are not available. However, targets of 1.45 lakh metric tons of safflower seed and 74,000 metric tons of niger seed have been tentatively fixed for production during the Fourth Five Year Plan. A target of export of Kardi oil of 1,000 metric tons

by the end of Third Five Year Plan and 3,000 metric tons by the end of Fourth Five Year Plan would be justified.

34. An additional source of edible oil of agricultural origin is tobacco seed which has an oil content varying from 36 to 41 per cent. Tobacco seed oil is also a substitute for linseed oil in the manufacture of paints, varnishes and enamels. Recent enquiries have shown that the average annual availability of tobacco seed during the period 1959-60 to 1961-62 was 18,000 metric tons yielding about 5,000 metric tons of tobacco seed oil. Our exports of tobacco seed oil have varied between 201 tonnes and 563 tonnes during the last 3 years. The growing tendency of growers to resort to topping of the tobacco plants with a view to improving the quality of leaf is likely to affect adversely the production of tobacco seeds. It is, therefore, not possible to increase the exports of tobacco seed oil to any marked extent. In fact, the exports may go down.

35. Rice bran contains 15—20 per cent of oil which is comparable in many respects to sesamum oil. At present only 17,000 metric tons of rice bran are being extracted for oil, yielding about 2,550 metric tons of oil. The *ad hoc* Committee constituted in the Ministry of Commerce and Industry, which reviewed the position of Rice Bran Industry (1960), was of the view that it may be possible in the initial stages to obtain over 3 lakh metric tons of rice bran per annum for the extraction of rice bran oil. If this is subjected to oil extraction, it will yield about 46,000 metric tons of oil.

36. In addition to the agricultural sources named above, there are several trees growing both in forest and non-forest areas which are potential sources of non-edible oilseeds. Of these, the more important are: neem, mahua, karanj, undi, khakan, kusum, kokum, nahor, dhupa, pisa and sal. Authoritative statistics regarding production, collection and utilisation of these oilseeds are not available. However only a small fraction of the total potential is being collected and utilised at present, mainly for the manufacture of soaps by the small scale soap manufacturers. Species-wise estimated production and actual collection of some of the important non-edible oilseeds in the country based upon surveys carried out from time to time by the Indian Central Oilseeds Committee and information collected from the Khadi and Village Industries Commission, Directorate of Economics and Statistics and Chief Conservators of Forests of various States are as under—

TABLE II

Estimated production and collection of certain non-edible oilseeds

S. No.	Name of non-edible oilseeds	Estimated production (Metric tons)	Actual collection (Metric tons)
1	Mahua	2,21,047	42,540
2	Neem	4,21,267	23,995
3	Karanj	97,242	11,501
4	Undi	3,849	1,149
5	Khakan	46,678	149*
6	Pisa	345	31
7	Kokum	479	392
8	Kusum	949	153
9	Nahor	5,790	..
10	Sal	2,15,626	..
	Total	10,13,272	79,910

* Collected in Saurashtra region of Gujarat State.

Efforts should be made to increase the production of mahua oils by persuading the State Governments to abstain from cutting down mahua trees in pursuance of their Prohibition Policy.

37. The seeds of trees like Pisa, Kokum, Neem and Sal, grown principally in the forest areas, have a good oil content. The oil obtained from these seeds contains a high percentage of stearic acid. They can, therefore, be used by the soap industry which at present is using costlier oils like coconut oil and palm oil. The main handicaps in obtaining supplies of oilseeds grown in the forest areas are the cost of collection and lack of steady supplies. There are also no accurate statistics of their production.

38. The Indian Central Coconut Committee should consider what steps are necessary for increasing production of coconut oil and the feasibility of growing red palm in the country on a plantation basis.

39. Another important source of vegetable oil is cottonseed which has an oil content varying from 16 to 21 per cent by weight of seed. Only about 6 to 7 per cent of cottonseed is at present crushed for oil-extraction, the remaining quantity being fed directly to cattle. During 1962-63, the production of cottonseed was estimated at about 19 lakh metric tons. On this basis, the quantity of cottonseed oil production in 1962-63 may be roughly estimated at 30,000 metric tons. In the Third Five Year Plan a production target of 1 lakh metric tons of cottonseed oil has been laid down. More cottonseed crushing units are being set up. Refined cottonseed oil is used for edible purposes. It is also at present used as a raw material in the manufacture of *Vanaspati* (hydrogenated oil) to the extent of 10 per cent of the total oil used. The present pace of development of the cottonseed oil industry should be intensified so that the increasing supply of cottonseed oil may keep prices of other edible oils at reasonable levels and thus promote exports of other oils and also of cottonseed cakes.

40. **Freight**—Persistent complaints are received from the shippers that the Conference Lines hold a substantial sum of money with them and also dictate terms to the shippers on pain of forfeiting the rebate. It is suggested that net rate should be charged so that the amounts are not locked up.

41. **Storage**—A serious handicap experienced by the trade is the absence of bulk storage facilities for vegetable oils in port towns and of equipment for loading oils in tankers. There is need for the Port Trusts to provide storage tanks, pumping units, tank barges etc. at the ports. They could charge out-of-pocket expenses from the users of these facilities.

42. The review of exports of oils, oilseeds and oilcakes shows that there are substantial possibilities of improvement provided that there is a determined long-term policy to do so and measures are undertaken with a will, direction and purpose to promote it. Unfortunately, there have been shifts in policies and lag in efforts both of which have contributed to a changing pattern both in quantities and destinations. No export trade can flourish on these shifting sands of policies dictated more by expediency than by prudence based on a long-term and broad assessment of needs and policies. The commodities covered under this review have possibilities both in developed and developing countries and as such afford an ideal basis for significant advance in exports and it would be a great pity if for our own faults we are unable to exploit this source to the substantial advantage of our country.

CONCLUSIONS AND RECOMMENDATIONS

1. We have lost ground in a number of countries in respect of the exports of mustard seed. We have also lost ground in respect of groundnut oil in Burma and Netherlands. Imports of linseed oil by Australia have practically stopped and have declined in Rumania and U.K. Efforts should be made to recover our position in as many countries as possible. (Paras 17—21).

2. For tackling the problems arising out of the vagaries of the monsoon, a suitable system of crop insurance in selected areas of production should be introduced. (Para 27).

3. Efforts should be made to increase the yields of oilseeds through the introduction of better farming practices by strengthening the extension system. (Para 28).

4. The manufacturers should also be encouraged to propagate improved methods of oilseeds cultivation in the areas supplying them the raw materials. (Para. 29).

5. The question of permitting imports of American expellers should be examined. There is need to conduct a thorough study of the economics of oil milling. (Para 30).

6. Efforts should be made to set up cattle feed industry in the country on a substantial scale so that we could improve the quality of cattle feed in the country and earn more foreign exchange by exporting cattle feed than by exporting oilcakes. Some of the indigenous grasses and molasses could be used along with the oilcakes for this industry. (Para 32).

7. Out of over 3 lakh metric tons of rice bran, estimated to be available for oil extraction, only 17,000 tonnes are actually used for this purpose. Efforts should be made to increase the production of rice bran oil. Steps should also be taken to increase the collection of non-edible oilseeds from trees like mahua, neem, karanj, undi which grow in the forest and non-forest areas. Efforts should be made to increase the production of mahua oil by persuading the State Governments, to abstain from cutting down the mahua trees in pursuance of their prohibition policy. (Paras 35-36).

8. The Indian Central Coconut Committee should consider what steps are necessary for increasing the production of coconut oil and for growing red palm in the country on a plantation basis. (Para 38).

9. The present pace of development of the cottonseed oil industry should be intensified. The increasing supply of cottonseed oil may keep prices of other edible oils at reasonable levels and thus promote exports of other oils and cottonseed cakes. (Para 39).

10. Persistent complaints are received from shippers that the Conference Lines hold a substantial amount of money with them and also dictate terms to the shippers on pain of forfeiting the rebate. It is suggested that net rate should be charged so that the amounts are not locked up. (Para 40).

11. There is need for the Port Trusts to provide storage tanks, pumping units, tank barges etc. at the ports. They could charge out-of-pocket expenses from the users of these facilities. (Para 41).

12. **Export Targets**—The following export targets may be fixed for the end of the Third/Fourth Plan period—

(Metric tons)

Commodity	III Plan	IV Plan	Para No.
Groundnut kernel	50,000	70,000	31
Castor oil	45,000	50,000	31
Groundnut oil	75,000	1,50,000	31
Oilcakes	10,00,000	20,00,000	32
Kardi oil	1,000	3,000	33

सत्यमेव जयते

APPENDIX I

Exports of Five Major Oilseeds from India

Quantity: Metric tons
Value : Rs. in lakhs

	1954-55		1955-56		1956-57		1957-58		1958-59	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut .	23,446	254·17	27,138	265·21	469	2·96	1,630	4·33	20,616	175·07
Rapeseed Mustard.	109	0·97	244	1·63	Neg.	0·01	Neg.	0·03	52	0·50
Sesamum .	..	..	3,075	28·88	1	Neg.	Neg.	Neg.	230	2·00
Linseed .	..	..	1	0·01	2	0·02	..	..	2	0·02
Castor seed .	..	..	..	..	..	..	..	..	..	..
Total .	23,555	255·14	30,158	295·73	472	2·99	1,630	4·36	20,930	177·59

	1959-60		1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut .	24,466	209·78	48,545	494·88	38,135	397·45	40,795	407·24	36,874	385·08
Rapeseed Mustard	23	0·21	25	0·17	7	0·08	194	2·37	239	2·62
Sesamum .	455	4·37	99	1·49	275	3·03	559	6·81	1,380	15·77
Linseed .	5	0·04	2	0·01	1	0·01	1	0·01	1	0·01
Castor seed .	..	..	..	..	..	..	..	..	..	..
Total .	24,949	214·40	48,671	496·55	38,418	400·57	415·49	416·43	38,494	403·48

Neg.=Negligible.

APPENDIX II

Exports of Five Major Oils from India

Quantity: Metric tons
Value : Rs. in lakhs

	1954-55		1955-56		1956-57		1957-58		1958-59	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut oil .	102,072	1282·75	126,838	1569·06	801	12·02	20	0·35	5,411	75·39
Rape & Mustard oil	488	9·08	841	13·09	92	1·93	289	6·85	226	4·92
Sesamum oil .	Neg.	Neg.	4,297	58·34	346	5·81	1	0·02	452	6·88
Linseed oil .	10,285	115·69	82,416	945·65	33,088	548·02	20,611	224·67	14,212	198·08
Castor oil . .	32,687	353·15	39,684	411·77	44,080	684·09	37,833	668·84	18,611	272·22
Total .	145,532	1760·67	254,076	2297·91	78,407	1251·87	58,754	900·73	38,912	557·49

	1959-60		1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut oil .	38,470	525·31	975	20·76	6,789	102·90	57,732	782·90	97,106	1344·59
Rape & Mustard .	274	6·09	235	5·39	194	5·06	180	4·79	198	5·15
Sesamum oil . .	127	2·13	7	0·19	6	0·19	9	0·24	40	0·64
Linseed oil .	17,639	245·56	6,789	87·63	391	7·95	741	12·75	621	8·73
Castor oil . .	37,833	668·84	18,611	272·22	46,848	658·90	46,694	670·73	24,880	399·53
	46,848	658·90	46,694	670·73	24,880	399·53	30,114	428·72	35,368	480·34
Total .	103,358	1437·99	54,700	784·70	32,260	515·63	88,776	1229·40	133,333	1839·45

Neg.=Negligible.

APPENDIX III

Exports of Five Major Oilcakes from India

Quantity : Metric tons
Value : Rs. in lakhs.

	1954-55		1955-56		1956-57		1957-58		1958-59	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut cake .	29,214	126·25	96,119	353·46	12,069	45·87	33,280	92·98	106,431	373·69
Rape & Mustard Oil cake .	..	..	13,841	31·84	619	2·33	..	..	..	..
Sesamum cake .	..	..	..	..	255	0·84	110	0·32	1,172	3·88
Linseed oil cake .	4,919	15·22	10,976	35·38	3,773	13·54	3,481	10·27	6,987	26·20
Castor oil cake .	..	..	947	2·07	203	0·40	..	..	..	..
Defatted Groundnut meal .	..	..	..	..	4,078	12·32	44,356	121·75	174,616	584·06
Total .	34,133	141·47	121,883	422·75	20,997	75·30	81,227	225·32	239,206	987·83

	1959-60		1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Groundnut cake .	154,679	597·73	34,059	121·44	47,432	171·27	49,362	192·45	21,202	79·83
Rape & Mustard Oil cake .	5	0·02	..	..	..	..	..	..	..	..
Sesamum cake	3,416	10·42	1,234	3·50	210	0·66	1,353	4·37	1,546	5·28
Linseed oil cake .	79,260	317·55	38,315	131·02	6,904	26·41	29,221	106·45	13,668	48·91
Castor oil cake .	51	0·19	..	..	..	..	..	..	..	..
Defatted Groundnut meal .	291,006	1065·71	311,167	1035·20	399,066	1395·96	708,141	2552·03	801,755	3047·43
Total .	528,417	1991·62	384,775	1291·16	453,622	1594·30	788,977	2955·30	838,171	3181·45

APPENDIX IV

Summary of conclusions and recommendations of report of the Committee on Castorseeds

1. On the basis of our present production of castorseed we can export about 30,000 metric tons of castor oil per annum. The target of castor production laid down under the Third Five Year Plan is 2.28 lakh metric tons. According to present indications, this target is not likely to be achieved. Castor is primarily an export crop and if we are able to increase our exports, the production can also be stepped up.

2. There is a large scope for extension of castor cultivation in the States of Gujarat, Himachal Pradesh, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh. The castor cultivation may be encouraged (i) in the foot hills, and on the slopes of the hills, (ii) on river banks, canal banks, tank-bunds and irrigational channels, (iii) as borders of crops such as cotton, sugarcane, chillies, turmeric, jowar, etc., (iv) on reclaimed lands and (v) counter bunds.

3. The cultivation of castor may be intensified on the lines of the 'package' scheme that has been introduced recently for groundnut and cotton.

4. The cultivation of castor as a mixed crop with groundnut may be tried in India, as has been done in Nigeria. This practice of growing castor as a mixed crop with groundnut if universally adopted, could make a most spectacular contribution to increased production of castor in India. Pilot projects should be instituted for intercropping of castor in groundnut areas with the locally available non branched types and with the non-branched types to be imported from Nigeria, and their value for intercropping purposes should be assessed. If these pilot studies are successful, the practice of growing these non-branched varieties as a mixed crop with groundnut should be encouraged in all the castor growing areas.

5. It is not necessary to set apart any of the Government waste lands located by the Waste Lands Survey and Reclamation Committee for growing of castor on a plantation basis.

6. With regard to the question of cultivating castor on railway lands, the Railways have no objection to utilisation of lands near the railway tracks for growing of castor. However, the cultivators of the adjoining areas have not been induced yet by the local officers to make use of the facilities offered by the Railways. There is need for the staff of the National Extension Services and the Community Development Blocks to induce the cultivators to take advantage of the facilities offered by the Railways for the growing of castor. This matter deserves the continuous attention of the Ministry of Food and Agriculture, the Ministry of Community Development and Cooperation and the Indian Central Oilseeds Committee.

7. With a view to stimulating the exports of castoroil and making it competitive in the world markets, (a) 50 per cent concession in rail freight should be allowed for all oils meant for export, (b) the steamship lines may be persuaded to charge a net rate of freight and to give up the deferred rebate system and (c) the West Germany Government may be persuaded to reduce the high tariff on imports of first pressed castor oil.

8. The exports of castor oil by the end of the Third Five Year Plan should be 45,000 metric tons per year.

APPENDIX V

Value per tonne realised by Exports of Oilseeds, Oils and Oilcakes

(In Rs.)

Commodity	1959-60	1960-61	1961-62	1962-63	1963-64
Oilseeds					
Groundnut	857	1,019	1,042	998	1,044
Rape and Mustard seed	913	680	1,143	1,222	1,096
Sesamum seed	960	1,505	1,102	1,218	1,143
Linseed	800	500	1,000	1,000	1,000
Vegetable Oils					
Groundnut oil	1,366	2,129	1,516	1,356	1,384
Rape and Mustard oil	2,223	2,313	2,608	2,661	2,600
Sesamum oil	1,677	2,714	3,167	2,667	1,600
Linseed oil	1,392	1,291	2,033	1,721	1,406
Castor oil	1,406	1,436	1,606	1,424	1,358
Oil Cakes					
Groundnut cake	386	357	361	390	377
Sesamum cake	305	284	314	323	342
Linseed cake	401	342	383	364	358
Defatted Groundnut meal	366	333	350	360	380

APPENDIX VI

Average Annual Quantity and Value of Exports of groundnut (by Countries) During the Triennia ending 1959-60 *and* 1962-63

सत्यमेव जयते

Countries	1st Triennium (Annual Average)		2nd Triennium (Annual Average)	
	Groundnuts		Groundnuts	
	Quantity (Metric tons)	Value (Rs. in lakhs)	Quantity (Metric tons)	Value (Rs. in lakhs)
Canada	2,990	27·02	2,058	22·48
Netherlands	3,830	33·53	7,376	74·58
U.K.	5,902	45·76	12,300	124·15
Poland	641	5·12	4,134	42·50
Czechoslovakia	190	1·51	3,718	37·96
Germany West	419	3·67	3,310	33·24
Belgium	25	0·22	80	0·87
Ceylon	70	0·66	806	2·18
Total *	15,581	129·72	42,492	433·19

---

* This includes figures for 'Others' also.

APPENDIX VII

Average Annual Quantity and Value of Exports of Vegetable Oils During the Triennia ending 1959-60 *and* 1962-63

Countries	First Triennium (Annual Average)						2nd Triennium (Annual Average)					
	Quantity (Metric tons)			Value (Rs. in lakhs			Quantity (Metric tons)			Value (Rs. in lakhs)		
	Ground-nut Oil	Castor Oil	Linseed Oil	Ground-nut Oil	Castor Oil	Linseed Oil	Ground nut Oil	Castor Oil	Linseed Oil	Ground-nut Oil	Castor Oil	Linseed Oil
Burma	5,007	..	..	70·81	..	..	1,158	..	..	17·22	..	..
Netherlands	3,219	256	..	40·97	54·60	..	41	5	..	15·48	0·09	..
U.K.	1,117	12,187	9,862	14·31	184,70	116·71	2,950	12,064	1,451	34·40	173·30	18·15
Germany West	701	750	..	8·75	11·63	..	1,364	500	83	22·89	7·71	1·39
Hong Kong	646	..	..	8·84	..	..	3,144	..	..	45·04	..	..
Spain	..	..	..	..	..	..	6,698	385	..	89·92	5·87	..
Australia	243	1,246	6,292	3·19	20·88	86·55	1,795	1,236	141	25·00	20·55	2·04
U.S.S.R.	..	5,685	..	..	92·62	..	..	9,945	..	..	152·96	..
U.S.A.	..	11,112	..	..	163·84	..	..	4,925	..	..	63·81	..
Poland	..	..	..	..	..	..	..	1,211	..	..	18·09	..
Romania	..	..	632	..	..	8·87	..	..	365	..	..	4·55
Pakistan West	..	..	167	..	..	2·45	..	..	102	..	..	2·05
Czechoslovakia	..	486	127	..	8·07	1·75	..	1,001	255	..	14·92	3·71
Total*	14,634	34,431	17,487	200·35	533·32	222·77	21,832	33,897	2,640	302·19	499·66	36·11

*This includes figures for 'Others' also.

APPENDIX VIII

Average Annual Quantity and Value of Exports of Oilcakes During the Triennia ending 1959-60 *and* 1962-63

Countries	1st Triennium (Annual Average)						2nd Triennium (Annual Average)					
	Quantity (Metric tons)			Value (Rs. in lakhs)			Quantity (Metric tons)			Value (Rs. in lakhs)		
	Ground-nut Cake	Linseed Cake	Defatted Ground-nut meal	Ground nut Cake	Linseed Cake	Defatted Ground-nut meal	Ground-nut Cake	Linseed Cake	Defatted Ground-nut meal	Ground-nut Cake	Linseed Cake	Defatted Ground-nut meal
U.K.	78,609	10,206	141,398	279·81	37·91	480·11	35,857	9,932	2,89,490	132·05	35·11	102·12
Poland	2,510	2,120	18,130	9·58	8·44	70·93	2,011	..	48,994	7·00	..	183·07
Denmark	1,597	698	..	5·86	2·67	..	716	426	..	2·85	1·38	..
Germany West	8,737	4,888	4,295	32·70	19·38	15·95	2,700	3,324	14,722	9·95	12·09	51·37
Hungry	..	..	..	..	..	..	691	..	47,105	4·04	..	167·88
France	..	4,323	..	..	16·70	..	..	..	6,812	..	..	25·75
Netherlands	..	3,494	122	..	15·67	0·60	..	..	979	..	..	3·64
Belgium	..	2,930	23	..	11·70	0·06	..	..	1,182	..	..	4·49
Germany East	..	868	2,700	..	3·45	10·17	..	10,818	21,869	..	38·15	78·68
Yugoslavia	..	..	3,031	..	..	11·65	..	..	17,229	..	..	63·42
Total @	98,130	29,909	169,993	354·80	118·01	590·51	43,617	24,813	4,72,794	161·72	87·96	1,694·40

@ This includes figures for 'Others' also.

APPENDIX IX

Production and Exports of Vegetable Oil Seeds, Oils and Oilcakes

(Quantity in 1000 Metric tons)

Year	Vegetable Oilseeds			Vegetable Oils			Oilcakes		
	Production	Export	Percentage of Export to Production	Production	Export	Percentage of Export to Production	Production	Export	Percentage of Export to Production
1956-57	6,363	Neg.	Neg.	1,611	78	4·84	2,604	21	0·81
1957-58 . . .	6,350	2	0·03	1,574	59	3·75	2,546	81	3·18
1958-59 . . .	7,303	21	0·29	1,837	39	2·12	2,986	289	9·68
1959-60 . . .	5,980	25	0·42	1,500	103	6·87	2,483	528	21·26
1960-61 . . .	6,624	49	0·74	1,658	55	3·32	2,782	385	13·84
1961-62 . . .	6,958	38	0·55	1,737	32	1·84	2,872	454	15·81
1962-63 . . .	6,876	42	0·61	1,734	89	5·13	2,876	788	27·40
1963-64 . . .	7,096	38	0·53	1,755	133	7·57	2,835	838	29·55

Neg.—Negligible.

APPENDIX X

Average Annual Yields for Hectare of Different Oilseeds During the Triennium ending 1961-62

Groundnuts		Rapeseed		Sesamum		Linseed	
Countries	Yield per hectare (Kg.)	Countries	Yield per hectare (Kg.)	Countries	Yield per hectare (Kg.)	Countries	Yield per hectare (Kg.)
United States	1,334	Poland	1,470	Mexico	630	Canada	508
Argentina	1,378	Sweden	2,100	India	159	United States	527
Burma	727	Canada	842	Burma	165	Argentina	670
India	708	India	421	Pakistan	376	India	226
Senegal	907	Japan	1,394	Turkey	590	Mexico	1,074
Nigeria	1,579	Pakistan	426	Sudan	458	Uruguay	811
Indonesia	1,085	Germany East	1,472			Poland	495
Japan	2,207	France	1,493			France	864
South Africa	660						
Sudan	907						

CHAPTER III

SUGAR AND ITS BYE-PRODUCTS

(i) SUGAR

1. **Production**—The production of sugar in India during the sugar seasons (November—October) of 1959-60 to 1963-64 is given below :—

Sugar season	Production (Lakh metric tons)
1959-60	24·82
1960-61	30·29
1961-62	27·14
1962-63	21·52
1963-64	25·67

During the quinquennium ending 1963-64, production was at its peak in 1960-61 when it exceeded 30 lakh metric tons. It declined during the next two years and came to 21.5 lakh tonnes only in 1962-63. In 1963-64, it rose to 25.67 lakh tonnes.

EXPORT TRENDS

2. **Volume and Value**—The following table shows the vlume and value of exports of sugar for the years 1957-1963 :—

TABLE 1

Volume and Value of Sugar exports

Year	Quantity (Lakh metric tons)	Value (Rs. in lakhs)
1957	1·47	1,188·71
1958	0·50	247·32
1959	0·16	78·46
1960	0·18	80·80
1961	2·68	1,327·46
1962	3·37	1,481·15
1963	4·79	3,231·90

3. Exports of sugar from India depend on a number of factors, such as exportable surplus, international prices and quantum of loss involved. India did not export sugar till 1956. During the period 1954 to 1956, we had to import substantial quantities of sugar. There was some surplus at the beginning of the 1956-57 season and the prospects of production during this season were also bright. It was, therefore, decided to export sugar for earning foreign exchange and the Indian Sugar Mills Association was authorised to handle the work of exports. During 1957, a quantity of about one and a half lakh metric tons was exported. Normally, exports entail heavy losses but during this year it was possible to export sugar without any loss as the international prices rose substantially owing to the Suez crisis and the poor beet crop in Europe.

4. This buoyancy was, however, short-lived. The world production improved and the prices also declined in 1958. Consequently, it became difficult to export sugar without incurring a loss. The Government of India, therefore, passed the Sugar Export Promotion Act, 1958, which empowered it to fix export quotas from time to time, and to apportion them to the various factories. A quota of 51,000 metric tons was released in June, 1958, and practically the entire quantity was shipped. It was originally contemplated to export a larger quantity in the following year but, due to a fall in production, the supply position became tight and exports were suspended. For these reasons the exports were small during the years 1958 to 1960.

5. Our total exports during these years came to about 84,000 metric tons, i.e., about 57 per cent of what we exported in 1957. With the recovery in production in 1959-60, exports were resumed towards the second half of 1960 with the release of an export quota of about 51,000 metric tons of sugar in September 1960. During the sugar season of 1960-61, a quota of 2.76 lakh metric tons was released.

6. U.S.A. purchases sugar only from countries which are members of the International Sugar Agreement and the price paid by U.S.A. is considerably higher than that realised in the international markets. Therefore, in order to take advantage of the U.S. quota of about 1.9 lakh metric tons (2,25,000 short tons raw value), India became a member of the Agreement in July 1961. In addition to the U.S. quota, India also secured a quota of 1.14 lakh metric tons for export during the year 1961 under the International Sugar Council. A further quota of about 18,000 metric tons was also granted to India by the International Sugar Council out of its hardship reserve. The total quota available to India for exports during 1961 to destinations other than U.S.A. was, therefore, 1.32 lakh metric tons.

7. A United Nations Sugar Conference was held in September/October and December 1961 in Geneva. As no agreement on quotas was reached at these conferences, it was decided to suspend the provisions relating to quota allocations and to work the Agreement without these provisions during the years 1962 and 1963. In anticipation of the expiry of the 1958 International Sugar Agreement on December 31, 1963, a United Nations Conference met in London in July 1963 and adopted a protocol extending the 1958 Agreement until 1965. The quota provisions are to remain suspended during the two years' extension agreed to under the protocol. India has, therefore, been free to export as much sugar as she can since 1962.

8. Till March 1961, the loss on exports was met by the industry. In view of the inability of the industry to meet the loss on further exports due to the implementation of the Wage Board Report etc. and the inadvisibility of raising the consumer's price, it was decided that loss on further exports would be met mainly by the Government of India. For this purpose, subsidies of Rs. 5.5 crores, Rs. 14.20 crores and Rs. 3.42 crores were paid in 1961-62, 1962-63 and 1963-64 respectively.

9. Statistics showing the volume and value of country-wise exports of sugar during 1957 to 1963 are given in Appendices I and II. In 1957, as many as 15 countries bought sugar from us. But only Malaya, Singapore, Aden and Oman have been buying sugar regularly from us. China has not bought sugar from us since 1957 and Sudan since 1958.

10. However, new vistas for the export of our sugar have been opened up recently with the entry of U.S.A. and Canada as important buyers of our sugar in 1961. Japan and Syria bought sugar from us for the first time in 1963. U.S.A. was the largest purchaser of our sugar in 1961. Malaya and Singapore, our largest purchasers during the preceding four years, became a far second and accounted for about 34 per cent of our exports. Aden came third in importance. During 1962, U.S.A.'s in-take declined slightly, while that of Canada increased substantially and slightly exceeded that of U.S.A. However, these two countries stood out as the two most important purchasers of our sugar in 1962 and together accounted for 69 per cent of our exports. Malaya and Singapore took 15 per cent. Hongkong and Pakistan purchased 3 per cent and 4 per cent respectively. U.S.A.'s share fell from 55 per cent in 1961 to 34 per cent in 1962 and that of Malaya and Singapore from 34 per cent in 1961 to 15 per cent in 1962. During 1963, the in-take of U.S.A. and Canada together dropped to 39 per cent. Malaya-Singapore's share remained at the 1962 level. Japan and Syria accounted for 20 per cent and 4 per cent respectively of the quantum of exports. In 1964, U.S.A.'s purchases dropped from 105,000 tonnes to about 99,000 tonnes. The exports are likely to go down further in 1965, as our quota is expected to stand around 88,000 tonnes only.

11. Depending upon the international prices, sugar exports fetched varying returns in different years as given below :—

Year	Unit value (Value per metric ton)
	Rs.
1957	809
1958	496
1959	489
1960	454
1961	496
1962	397
1963	675

EXPORT PROMOTION

12. **Exportable Surplus**—To step up sugar production and enhance exportable surplus in India, the capacity of the industry is being raised under the Five Year Plans. From 16.7 lakh tonnes at the beginning of the First Five Year Plan the capacity is being raised to 35.5 lakh tonnes by the end of the Third Five Year Plan period (1965-66). It is preferable to create additional capacity by expanding the existing units specially the uneconomic ones; this expansion would make them economic.

13. **Yields**—The yield per acre of sugarcane, the basic raw material for sugar, in India is very low. The figures of yields (per acre) in some important sugarcane-producing countries for 1962-63 are given below :—

Countries	Yields per acre (Metric tons)
India	16·2
Mexico	22·9*
U.S.A.	23·1
Indonesia	43·8†
Australia	28·4

*1961-62

†Relates to 1958.

Yields also vary greatly in different States. Efforts should be made to raise the yield per acre through better agronomic practices, better irrigation facilities and effective pest control measures. There is also need to improve the quality of sugarcane so that it may yield more sugar. The recovery percentage of sugar from sugarcane has remained practically stationary, around 10 per cent since 1950-51.

14. **Cost of Production**—As the Indian sugar is unable to compete in the international market, ways and measures should be found for reducing the cost of production and the cost of transport. Rehabilitation and modernisation of the sugar industry are needed to secure the former objective. In order to reduce the cost of transport, factories in States situated near the ports like Maharashtra could be ear-marked for export purposes.

15. Another possibility of lowering costs of production is by using sugar beet for the production of sugar. Sugar-cane cannot be grown in many parts of India, particularly Jammu and Kashmir, Himachal Pradesh, Assam and northern regions of Punjab and Uttar Pradesh. A possible source of extracting sugar in these regions is sugar beet. Experiments were conducted on the cultivation of sugar beet in various parts of India by the Indian Institute of Sugarcane Research, Lucknow, in collaboration with the State Sugarcane Research Stations during 1959—62. These revealed that sugar beet could be grown successfully in Punjab and other parts of north India. Experiments relating to technological aspects of processing sugar beets were carried out at the National Sugar Institute, Kanpur. These indicated that, if suitable equipment was available, there would be no difficulty in producing sugar from beet in India. Appendix III shows the estimates of costs of producing sugar from (a) cane and (b) beet of factories with a 1000-ton capacity (per day) in northern India. The cost of beet sugar works out to Rs. 36.23 per maund as against Rs. 39.76 per maund for cane sugar, showing a saving of Rs. 3.53 per maund. This is due to the lower cost of raw material. It is not yet known how the costs will compare when sugar beet is grown on a commercial scale. But it is essential to encourage the industry to start cultivation of beet to work out the economics of beet sugar production.

16. **Raw Sugar**—Raw sugar has considerable potentialities for exports, as many countries, e.g., Japan, Canada, U.K. and U.S. import only raw sugar. Malaysia, which so far used to import white sugar, will import only raw sugar in future. It will, therefore, be necessary to plan in advance the manufacture of raw sugar to meet the export requirements.

17. **The Japanese Delegation Report**—Japan is the largest importer of sugar in the free market. We exported sugar to Japan for the first time in 1963. The Government of India sent in May 1964 a delegation to Japan under the leadership of Shri V. Shankar, I.C.S., with a view to

(a) ascertaining the reaction of the Japanese refineries on the Indian raws imported by them in 1963 ;
(b) studying the requirements of the Japanese market ; and
(c) building up good-will for establishing a steady market for Indian raw sugar.

18. The delegation has reported that Japan provides a very good market for our sugar. Japan purchases sugar on the basis of London Daily Price quotations (c.i.f. U.K.). This gives a premium to India because of her geographical situation, vis-a-vis her competitors. Further, the Japanese buyers pay the insurance and also bear the discharge cost. But, for acquiring a strong-hold in the lucrative market of Japan, we have to improve our

competitive strength considerably. We have some assured market for our sugar in U.S. because of the U.S. Sugar Act. In Commonwealth countries like Canada and U.K., we enjoy the Commonwealth tariff preference and can hope to acquire assured markets by joining the Commonwealth Sugar Agreement. We have none of these advantages in Japan. Besides, we have to face strong competition from established and experienced competitors like Taiwan, Australia, South Africa and Cuba. It is, therefore, imperative for us to draw up a positive and sustained programme for export of sugar to Japan on the lines recommended by the delegation, viz., improvement of quality, phasing of shipment, introduction of packages of different sizes, manufacture of food yeast and sugar easter, bulk transport, development of contacts, long-term agreement, production of raws of different polarisations in different regions, production of raw sugar in a few selected factories etc.

19. As our exports are going to be in the form of raw sugar only, it will be desirable to undertake study and research in the manufacture of raw sugar in India. A special cell may be set up at the National Sugar Institute, Kanpur, for undertaking researches on problems relating to the manufacture of raw sugar under Indian conditions.

20. The quality of sugar supplied by us to Japan in 1962-63 and 1963-64 was found to be inferior to that of the sugar supplied by other countries. Greater attention should be paid to quality factors, viz., polarisation, colour value and grain size.

21. There is need to phase the shipment programme and give sufficient margin for delay. The production season in India varies from State to State. It should be, therefore, possible to phase export throughout the year. To achieve this, we should plan our movement programmme in advance and make fixtures for vessels in such a way as to permit completion of loading in the first week of the shipment month rather than in the last week as happened in 1964. This aspect is also important for our exports to other countries, e.g., U.S.A. and Canada. Having regard to the financial implications arising due to delays, it might be worth considering whether the responsibility of chartering vessels may be placed squarely on the buyers with usual safeguards for utilising Indian ships.

22. Sugar is marketed in Japan in different size packages to cater to the requirements of industrial users, bulk consumers and house-holds. Factories in India might be given permission to pack in different sizes instead of in one standard size of one quintal.

23. Possibility of manufacture of food yeast and sugar easter might be explored.

24. The Japanese refineries have a definite preference for bulk transport of sugar. The world sugar market is also progressing towards bulk transport and mechanised handling. We have to pay serious attention to this development.

25. Future business with Japan will, to a large extent, depend on contacts established with the Japanese sugar industry. Mutual exchange of visits of manufacturers, delegations and technical teams between India and Japan is, therefore, very desirable for some years to come. The possibilities of entering into a long-term agreement with Japan for exports of sugar might be explored.

26. For catering to the requirements of Canada, U.S.A. and U.K. arrangements should be made to produce high polarisation raws. It would be desirable to produce high polarisation and low polarisation raws in different regions and export them from different parts. This would avoid inter-mixing of the two qualities of raws and ensure that raws of the stipulated quality are exported to different countries.

27. The number of factories selected for the manufacture of raw sugar should be reduced and proper supervision of their equipment should be made to ensure that they are in a position to produce raw sugar of the desired quality. A few factories may be selected for the production only for raw sugar for export. This regional, functional and variety specialisation, should also result in economies in cost of production, transport, publicity etc.

28. **Export Targets**—The Development Council for Sugar Industry has recommended that the target of capacity and production for sugar by the end of Fourth Plan period—1970-71, should be of the order of 4.5 million tonnes. The target of export could be fixed at 5 lakh tonnes at the end of the Third Plan and 7.5 lakh tonnes at the end of the Fourth Plan. The actual exports would, however, depend on the surplus available from year to year, the level of international prices, our capacity to subsidise losses on exports and the limitation, if any, on exports under the International Sugar Agreement.

(ii) BYE-PRODUCTS/SUBSIDIARY PRODUCTS OF SUGAR INDUSTRY

29. **Export Trends Volume and Value**—Apart from sugar, which is being exported and the export market for which is being established increasingly, there are certain subsidiary industries based on sugar which offer potentialities for export. The chief of these are molasses, alcohol, fodder yeast, lactic acid, bagasse, press-mud (or sugarcane wax), confectionery, sugar candy, cane jaggery and palmyra jaggery. Statistics showing the volume and value of exports of bye-products/subsidiary products of sugar industry from India since 1961-62 are given in Appendix IV. During the triennium ending 1963-64, we exported annually, on an average, about 100 thousand metric tons of bye-products of sugar excluding alcohol and earned about Rs. 103 lakhs. The earnings from alcohol averaged Rs. 37 lakh. On the whole, the volume and value have risen considerably during the last three years.

30. Inedible molasses are the most important of the bye-products of sugar exported by us. They represented 48 per cent of the average annual value of exports of all the bye-products of sugar during the triennium ending 1963-64. Both the volume and value of their exports have increased considerably during these three years. Next in importance are the cane jaggery and sugar confectionery which contributed 8 per cent and 3 per cent, respectively, of the export earnings of bye-products other than alcohol in 1963-64. The exports of both cane and palmyra jaggery show a declining trend.

31. **Unit Value**—The unit value (value per metric ton) of the different bye-products of sugar varies greatly. Taking the annual average of the triennium ending 1963-64, the unit value was as high as Rs. 2,043 and Rs. 1,109 for confectionery and sugar candy and as low as Rs. 86 and 73 for inedible and edible molasses respectively. Consequently, the contribution of edible and inedible molasses to our foreign exchange earnings

is far shorter than their share in quantum, viz., 9 per cent and 48 per cent only. On the other hand, cane jaggery, whose average annual exports were about 3 per cent of those of inedible molasses, contributed about 10 per cent. We may try to develop our exports of confectionery and sugar candy.

32. The export trends of each of the bye-products are discussed separately below :—

Molasses—The following table shows the trend of the export of inedible molasses from India during the past three years: —

TABLE 2

Export of Inedible Molasses

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	66,747	48·95
1962-63	80,648	56·60
1963-64	89,525	97·82

The exports have risen continuously. The important countries importing Indian molasses (inedible) are Ceylon, South Korea, Belgium, U.S.A., U.K. and Japan. The production of molasses (inedible) during 1961-62 was about 10.6 lakh metric tons.

33. In addition to the inedible molasses, syrups and edible molasses are also being exported from India. The following table shows the exports of syrups and edible molasses during the past three years: —

TABLE 3

Exports of Syrups and Edible Molasses

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	16,846	12·37
1962-63	35,059	25·57
1963-64	107	0·27

Japan, Italy and U.K. are the principal buyers. There is scope for exporting molasses. But they are required increasingly for the growing petro-chemical industry in the country. The Government of India has, therefore, recently banned the exports of molasses.

34. There is a possibility of exporting cattle feed prepared from molasses. In foreign countries, where raw sugar is produced, the resulting molasses (black strap) are largely used as cattle feed in admixture with bagasse and other sillage. In India also it is possible to build up a sizeable cattle feed industry using molasses, deoiled cake and wild grasses. We should, therefore, attempt to export cattle feed.

35. **Alcohol**—There has been regular export from India of alcohol produced from molasses. The following table shows the exports of alcohol produced from molasses during the past three years :—

TABLE 4

Export of Alcohol

Years	Quantity ('000 litres)	Value (Rs. in lakhs)
1961-62	7,639	44·54
1962-63	8,057	38·90
1963-64	7,116	29·86

The important countries importing Indian alcohol are U.K. and Ceylon. It is understood that the molasses imported from India by Japan and South Korea are converted into rum and gin for the South East Asian countries. The annual value of such products amounts to a few crores of rupees. It would be desirable to develop the export of rum and gin. It is not difficult to produce high quality rum and gin required by the importing countries. It would, therefore, be desirable to study the possibilities of manufacturing rum and gin in India from molasses for export purposes. It should be our general policy to utilise bye-products for manufacturing purposes within the country for exporting the finished product rather than the raw material.

36. **Fodder Yeast**—Three units have been licensed, one each in Calcutta, Madras and Baroda for the manufacture of 1242 metric tons of yeast in India from molasses. Calcutta unit is expected to start production sometime in 1965. The other two units will still take some time to go into production. Efforts should be made to afford all reasonable facilities to the above factories so that they start manufacturing yeast quickly. We can then consider the possibility of exporting this product.

37. **Lactic Acid**—At present India does not produce any lactic acid, and depends on imports for her requirements. The following table shows the imports of lactic acid into India during the past three years :—

TABLE 5

Imports of Lactic Acid into India

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	12	0·49
1962-63	16	0·69
1963-64	37	1·29

We can make efforts to produce lactic acid ourselves from molasses and save foreign exchange by reducing imports.

38. **Bagasse**—Bagasse is at at present being used as fuel and there is little possibility of exporting bagasse as such. It is now realised that the use of bagasse as fuel is wasteful. The appropriate use of bagasse would

be to utilize its cellulosic content for producing cellulose-based products, such as paper, card-board or rayon. This would, however, mean replacement of bagasse with some alternative fuel like coal, wood or fuel oil or furnace oil. By proper rehabilitation and modernisation of some of the sugar factories in north India, considerable quantities of bagasse could be saved for the manufacture of paper and pulp. The average production of bagasse in an Indian factory may be taken as 34 per cent on cane and it would be possible by proper modernisation to manage with 26 per cent to 28 per cent of bagasse on cane and 6 per cent to 8 per cent can be saved. It is estimated that, taking the current level of production, about 1.0 million metric tons of moist bagasse can be saved in India. With the availability of 1.0 million metric tons of moist bagasse, it should be possible to reduce the import of 1.8 lakh metric tons of paper. There are already several plants licensed for the production of paper from bagasse. This bye-product of the sugar industry can thus contribute to a very great extent to the saving of foreign exchange. The paper mills do not find it worthwhile to purchase bagasses from sugar mills due to the heavy transport costs resulting from long distances between the paper mills and sugar mills. The possibility of concessional railway freight on the transport of bagasse may be examined.

39. **Sugarcane Wax**—Sugarcane wax is manufactured by the solvent extraction of the press-mud or the press-cake available from sugar factories using sulphitation method in the manufacture of sugar. The recovery of the can wax varies between 6 per cent and 14 per cent on the dry mud basis. Under good working conditions, the amount of available press mud is between 1.25 per cent and 1.75 per cent of the cane crushed. In a factory, having a crushing capacity of 800 metric tons of cane per day, 12 metric tons of press-cake would be available for extraction. If all the sugar factories, using sulphitation process, take up the production of sugarcane wax, 12 to 15 thousand metric tons of sugarcane wax can be produced in the country. So far only Messrs. Ravalgaon Sugar Farm Ltd., Ravalgaon (Nasik) have been producing approximately 8 metric tons of sugarcane wax annually for the past few years. Messrs. Vuyyuru Sugar Factory in Andhra Pradesh have taken up the production of this wax very recently.

40. The cost of production of sugarcane wax works out to about Rs. 5 to 6 per lb. (or Rs. 11 to 13 per kg.). It is estimated that the total production of fruits in the country may be around 10 million metric tons. According to the estimate of the Central Food Technological Research Institute, Mysore, on an average, one lb. of sugarcane wax may be required for treating one ton of fruits. The total requirement of sugarcane wax to treat 10 million metric tons of fruits will work out to approximately 4,500 metric tons or say 5,000 metric tons.

41. Sugarcane wax can replace carnauba wax in its industrial applications in the manufacture of boot polishes, furniture polishes etc. At present carnauba wax is imported from Brazil, Germany, U.K. and U.S.A. Out of the total imports of 284 metric tons, valued at Rs. 11.08 lakhs, of various kinds of waxes in 1963-64, the import of carnauba wax was 167 metric tons, valued at Rs. 7.80 lakhs.

42. The total production of potential of sugarcane wax of 15,000 metric tons annually if exploited, will not only meet the internal requirements but also provide substantial surplus for export. The sugar factories have not been able to undertake the production of sugarcane wax on

account of the non-availability of machinery as well as lack of a firm demand. We should consider the feasibility of allowing imports of machinery and equipment. A survey may also be undertaken to gauge the probable demand for this product in the overseas markets.

43. **Confectionery**—The following table shows the exports of sugar confectionery/sugar preparations from India during the past three years :—

TABLE 6

Exports of Sugar Confectionery/Sugar Preparations

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	37	0·88
1962-63	38	1·12
1963-64	202	3·66

The important countries importing Indian confectionery are Ceylon, U.K., Egypt, Aden, Kenya, Malaysia, Tanganyika, Singapore, Zanzibar and Muscat. Efforts should be made to augment exports by affording certain facilities to manufacturers, such as provision for imports of special colours, essences and packing materials which are not produced in the country.

44. **Sugar Candy**—The following table shows the exports of sugar candy from India during the past three years :—

TABLE 7

Exports of Sugar Candy

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	514	5·76
1962-63	177	1·86
1963-64	41	0·50

The only important country importing Indian sugar candy is Ceylon. It is reported that considerable work has been done on the production of sugar candy by the National Sugar Institute, Kanpur, at the Ravalgaon Sugar Farm Ltd., Ravalgaon (Nasik) on a collaborative reasearch basis. The samples of this candy can be procured and trial consignments sent abroad to ascertain the consumer's reaction.

45. **Cane Jaggery**—The following table shows the exports of cane jaggery from India during the past three years :—

TABLE 8

Exports of Cane Jaggery

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	4,318	15·84
1962-63	2,483	16·09
1963-64	1,108	9·67

The important countries importing Indian cane jaggery are Ceylon and Malaysia. Exports have fallen appreciably during 1962-63 and 1963-64. Afghanistan and Singapore, which imported from India cane jaggery worth Rs. 3.11 lakhs and Rs. 3.99 lakhs respectively during 1961-62, have practically not imported any cane jaggery from us during 1962-63 and 1963-64.

46. **Palmyra Jaggery**—Some limited quantities of palmyra jaggery are also being exported from India, as will be evident from the following figures of exports :—

TABLE 9

Exports of Palmyra Jaggery

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1961-62	192	1·25
1962-63	74	0·76
1963-64	39	0·55

The important countries importing Indian palmyra jaggery are Ceylon, Afghanistan, Malaysia and Singapore. The exports of palmyra jaggery have fallen appreciably during 1962-63 and 1963-64. Malaysia, Afghanistan and Singapore, which imported Indian palmyra jaggery worth a few thousand rupees during 1961-62, have practically not imported any palmyra jaggery during 1962-63 and 1963-64.

CONCLUSIONS AND RECOMMENDATIONS

1. Efforts should be made to raise the yield per acre of sugarcane in India through better agronomic practices, better irrigation facilities and effective pest control measures. There is also need to effect improvement in the quality of sugarcane so that it may yield more sugar. (Para. 13).

2. As the Indian sugar is unable to compete in the international markets, ways and means should be found for reducing the cost of production and the cost of transport. (Para. 14).

3. Experiments so far conducted indicate that, if suitable equipment were available, there would be no difficulty in producing sugar from beet in India. Efforts should be made to grow beet on a commercial scale. (Para. 15).

4. Raw sugar has considerable potentialities for export to many countries. It will be necessary to plan in advance the manufacture of raw sugar to meet the export requirements. (Para. 16).

5. Japan provides a very good market for our sugar. For acquiring a strong-hold in this lucrative market, it is imperative for us to draw up a positive and sustained programme for export of sugar to Japan on the lines recommended by the Sugar Delegation which visited Japan under the leadership of Shri V. Shankar, I.C.S., in May, 1964. (Para. 18).

6. A special cell may be set up at the National Sugar Institute, Kanpur, for undertaking research on problems relating to the manufacture of raw sugar under the Indian conditions. (Para. 19).

7. Greater attention should be paid to quality factors, viz., polarisation, colour value and grain size. (Para. 20).

8. There is need to phase the shipment programme and give sufficient margin for delays. It might be worth considering whether the responsibility for chartering vessels may be placed squarely on the buyers with usual safeguards for utilising Indian ships. (Para. 21).

9. Factories in India might be given permission to pack in different sizes instead of in one standard size of one quintal. (Para. 22).

10. The possibility of manufacturing food yeast and sugar easter might be explored. (Para. 23).

11. The Japanese refineries have a definite preference for bulk transport of sugar. The world market is progressing towards bulk transport and mechanised handling. We have to pay serious attention to this development. (Para. 24).

12. Mutual exchange of visits of manufacturers, delegations and technical experts between India and Japan is very desirable for some years to come. The possibility of entering into a long-term agreement with Japan might be explored. (Para. 25).

13. It would be desirable to produce high polarisation and low polarisation raws in different regions to avoid inter-mixing. (Para. 26).

14. A few factories may be selected for production of raw sugar. (Para. 27).

15. The target of export could be fixed at 5 lakh metric tons at the end of the Third Plan and 7.5 lakh metric tons at the end of the Fourth Plan. (Para. 28).

16. Efforts should be made to build up a sizeable cattle feed industry in India using molasses, de-oiled cake and wild grasses. We should attempt to export cattle feed. (Para 34).

17. It would be desirable to study the possibilities of manufacturing rum and gin in India from molasses for export purposes. (Para. 35).

18. Reasonable facilities should be provided to the factories recently licensed for the manufacture of fodder yeast so that they start manufacturing yeast quickly. We can then consider the possibility of exporting this product. (Para. 36).

19. Efforts should be made to start manufacture of lactic acid in the country from molasses. This would mean saving of foreign exchange at present spent on imports of lactic acid. (Para. 37).

20. By proper rehabilitation and modernisation of some of the sugar factories in north India, considerable quantities of bagasse could be saved for the manufacture of paper and pulp. This would also mean saving in foreign exchange at present spent on imports of paper and pulp. The possibility of concessional railway freight on the transport of bagasses may be examined. (Para. 38).

21. The manufacture/export of sugarcane wax should be encouraged by (a) allowing liberal imports of machinery and equipment and (b) undertaking a survey to gauge the probable demand for this product in the overseas markets. (Para. 42).

22. Efforts should be made to augment exports of confectionery by affording certain facilities to manufacturers, such as provision of imports of special colours, essences and packing materials which are not produced in the country. (Para. 43).

APPENDIX I

Export of Sugar from India

Quantity (Metric Tons)

Serial No.	Country	1957	1958	1959	1960	1961	1962	1963
1	Malaya and Singapore	24,933	21,449	14,231	10,899	90,697	56,766	76,464
2	Burma	11,643	3,040	..	..	6,429	..	..
3	Ceylon	8,158	1,014	..	3,046	..	..	12,000
4	South Vietnam ..	823	..	..	..	..	4,950	24,764
5	China (Mainland) .	33,624	..	..	..	..	..	..
6	Aden . . .	8,050	8,044	900	1,449	8,898	6,081	4,007
7	Sudan . . .	14,847	9,290	..	..	..	..	..
8	Iraq (Basrah) . .	13,085	..	..	..	..	4,401	..
9	Saudi Arabia . .	1,247	..	..	750	..	..	..
10	Qatar (Ummsaid) .	1,169	..	..	225	850	950	100
11	Oman (Muscat Dubai)	1,239	200	635	425	2,401	1,601	683
12	Bahrain . . .	2,637	..	..	399	2,352	200	..
13	French Somaliland (Djibouti) . .	..	1,198	100	600	1,088	3,950	100
14	East Africa (excl. Zanzibar) (Mombassa)	21,909	5,000	..	..	399	350	..
15	Zanzibar . . .	2,445	100	..	..	..	1,473	..
16	U. K. . . .	1,002	..	..	..	..	..	30,139
17	U.S.A. . . .	..	..	..	..	147,560	127,576	105,208
18	Canada . . .	..	..	..	..	6,895	130,981	83,185
19	Hongkong . . .	..	..	..	..	..	12,732	5,836
20	Pakistan . .	..	..	..	..	..	15,998	4,677
21	Netherlands . .	..	..	..	..	..	4,297	15,276
22	Syria . . .	..	..	..	..	..	..	20,978
23	Japan . . .	..	..	..	..	..	..	93,385
24	Other Countries .	..	500	164	100	600	979	700
	Total .	146,811	49,835	16,030	17,793	267,869	373,285	478,592

@No foreign exchange earned as it was Government of India's gift to Ceylon.

(*Source* :—I.S.M.A., Export Agency Division).

सत्यमेव जयते

APPENDIX II

Export of Sugar from India

Value (Lakhs Rupees)

Country	1957	1958	1959	1960	1961	1962	1963
Malaya and Singapore	211·81	108·09	70·08	53·40	412·22	239·06	697·51
Burma	92·92	15·41	..	..	24·78	..	..
Ceylon	64·44	Nil	..	1·25	..	..	55·53
South Vietnam	5·60	..	..	..	..	14·52	170·92
China (Mainland)	275·28	..	..	..	..	..	..
Aden	68·82	38·27	4·10	5·82	2·06	20·30	12·82
Sudan	110·21	38·40	..	..	..	..	..
Iraq (Basrah)	109·37	..	..	..	..	15·62	..
Saudi Arabia	11·24	..	..	3·12	..	..	..
Qatar (Ummsaid)	10·71	..	..	1·00	3·58	3·40	0·34
Oman (Muscat Dubai)	11·08	0·93	2·99	1·95	10·17	5·21	2·18
Bahrain	23·68	..	..	1·34	10·21	0·70	..
French Somaliland (Djibouti)	..	5·54	0·46	2·49	4·35	12·93	0·35
East Africa (Exclд. Zanzibar) (Mombassa)	163·75	37·45	..	..	1·76	1·28	..
Zanzibar	21·15	0·61	..	..	..	5·34	..
U. K.	8·65	..	..	..	..	..	203·18
U.S.A.	..	..	..	..	801·37	602·22	657·19
Canada	..	..	..	..	24·53	454·64	540·08
Hongkong	..	..	..	..	..	40·43	18·22
Pakistan	..	..	..	..	..	49·29	14·32
Netherlands	..	..	..	..	..	12·85	51·26
Syria	..	..	..	..	..	..	144·28
Japan	..	..	..	..	..	..	654·24
Other Countries	..	2·62	0·83	0·43	2·43	3·46	9·48
Total	188·71	247·32	78·46	80·80	1327·46	1481·15	3231·90

सत्यमेव जयते

APPENDIX III

Relative Costs of Production of Sugar from Cane or Beet in Northern India

Cost of production of Sugar (Rs per maund)	Cane Sugar	Beet Sugar
1. Raw materials	20·00	14·58
2. Purchase tax (@19 nP. per md. of raw material)	1·90	1·58
3. Cooperative Societies Commission (@ 5 nP. per md. of raw material)	0·50	0·42
	22·40	16·58
4. Manufacturing charges—		
(*i*) Power and Fuel	0·17	3·30
(*ii*) Chemicals and Filter Cloth	0·41	0·34
(*iii*) Salaries and Wages	2·62	3·01
(*iv*) Repairs, maintenance and consumable stores	0·76	0·72
(*v*) Depreciation	1·17	1·45
(*vi*) Overheads	0·56	0·66
(*vii*) Packing (at current) rates	0·70	0·70
	6·39	10·18
5. Allowances and adjustments—		
(*i*) Grade differential	(—) 0·14	(—) 0·14
(*ii*) Receipt from sale of molasses	(—) 0·07	(—) 0·09
(*iii*) Extra cost on cane/beet	(+) 0·26	(+) 0·26
(*iv*) Anticipated increases in costs since 1957-58	(+) 1·18	(+) 0·2
(*v*) Realisation from beet pulp	..	(—) 1·5
	(+) 0·23	(—) 1·27
6. Selling expenses other than commission	0·04	0·04
7. Excise duty	10·70	10·70
8. Total cost of production (excluding on capital invested)	39·76	36·23
9. Savings in costs on the assumption of same capital requirement or cane and beet sugar factories	Rs. 3·53 per maund.	

सत्यमेव जयते

APPENDIX IV

Exports of Bye-products/Subsidiary Products of Sugar Industry (Summary)

Quantity : Metric tons unless otherwise specified
Value : Rs. in lakhs.

Items	1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value
Molasses inedible . .	66,747	48·95	80,648	56·60	89,525	97·82
Syrup and molasses edible	16,846	12·37	35,059	25·57	107	0·27
Sugars and syrups not elsewhere specified—						
(*i*) Jaggery cane .	4,318	15·84	2,483	16·09	1,108	9·67
(*ii*) Jaggery Palmyra .	192	2·25	74	0·76	39	0·55
(*iii*) Other sorts . .	N.A.	0·27	N.A.	3·50	N.A.	5·26
Total .	N.A.	17·36	N.A.	20·35	N.A.	15·48
Sugar confectionery/sugar preparation	37	0·88	38	1·12	202	3·66
Sugar candy . . .	514	5·76	177	1·86	41	0·50
Alcohol ethylacohol denatured or not@						
(*i*) Spirits rectified .	..	..	195	0·77	6,252	24·70
(*ii*) Others . . .	7,639	44·54	7,862	38·13	864	5·16
Total .	7,639	44·54	8,057	38·90	7,116	29·86

N.A.—Not available.
@ In thousand litres.

सत्यमेव जयते

CHAPTER IV

CASHEW KERNELS

Cashew-nut trees are grown in the coastal districts of Madras, Kerala, Andhra Pradesh, Maharashtra, Goa, Mysore and Orissa. Madras and Kerala are the leading producers of this commodity.

EXPORT TRENDS

2. Cashew kernels are an important export commodity in India. Statistics showing the annual quantity and value of exports of cashew kernels during 1951-52 to 1963-64 are given in Appendix I. We exported 51 thousand tonnes of cashew-nut kernels in 1963-64 valued at about Rs. 21 crores. Both the quantity and value have been more than doubled during the period 1951-52 to 1963-64. During the First Plan period, the annual exports fluctuated between 21.6 and 34.6 thousand tonnes and averaged 28.7 thousand tonnes. During the Second Plan, the annual average exports went up to 38.3 thousand tonnes or by about 33 per cent. They rose steadily from 31.6 thousand tonnes in 1956-57 to 43.6 thousand tonnes in 1960-61 except for a slight set-back in 1959-60. During 1961-62 the exports came down but the position improved in 1962-63 when the quantity exported was the highest since 1951-52. A further rise was recorded in 1963-64.

3. The total value of exports has also been rising. The average annual value came to about Rs. 11.3 crores, ranging between Rs. 9 and Rs. 13 crores during the First Plan period. The average during the Second Plan was Rs. 16.1 crores, ranging between Rs. 14.5 and Rs. 18.9 crores. During the First Plan period, the unit value ranged between Rs. 3,095 and Rs. 4,578 and averaged Rs. 3,945. During the Second Plan it ranged between Rs. 3,865 and Rs. 4,606 and averaged Rs. 4,198. The export value dropped during 1962-63, neutralising considerably the gain from the rise in volume. Due to fluctuations in unit values, the foreign exchange earnings do not vary directly with the quantum. For example, in 1954-55 and 1958-59 the quantum rose but the value either came down or remained stationary. While the quantum fell during 1955-56, the value went up.

4. The relative importance of the buyers of our cashew kernels during 1956-57 to 1960-61 and during 1961-62, 1962-63 and 1963-64 is shown by figures in Appendix II. U.S.A. is the largest buyer, accounting for about 55 per cent of our cashew kernel exports in 1962-63 and 1963-64. U.S.S.R., coming next, bought about 11 per cent to 15 per cent of our exports. Purchases by West Germany, U.K., East Germany, Australia and Canada accounted for about 2 per cent to 9 per cent. Though U.S.A. continues to be the biggest buyer of our cashew kernels, her share has been declining in recent years due to the practically stationary level of her demand in relation to the rising volume of our exports. During the Second Plan it purchased annually about 70 per cent of our exports. The share of East Germany has, on the other hand, gone up from about 1 per cent during the Second Plan to 9 per cent in 1962-63; the actual demand rose from 407 to over 4,000 metric tons. Japan has recently started purchasing cashew kernels

from us. The removal of restriction on cashew imports by Japan has opened up prospects for developing this market. Effective propaganda can also help in expanding our trade with Australia.

5. **Production**—Cashew kernels are obtained from cashew nuts, produced in the country as well as imported. Our relative dependence on imports for the production of cashew kernels is brought out in the following table:—

TABLE I

Production and Imports of Cashew-nuts

Year	Production ('000 m. tons)	Imports ('000 m. tons)	% of imports to Production
1954-55	63	87	138
1955-56	78	63	81
1956-57	82	51	62
1957-58	96	101	105
1958-59	104	127	122
1959-60	118	97	82
1960-61	122	118	97
1961-62	127	102	80
1962-63	136	155	114
1963-64	N.A.	157	N.A.

N.A.—Not available.

Our imports have been rising fast. From 87 thousand tonnes in 1954-55, they went up to 118 thousand tonnes in 1960-61. Our average annual imports rose from 62 thousand tonnes during the First Plan to 99 thousand tonnes, or, by more than 50 per cent during the Second Plan. They registered a marked rise in 1962-63 when they came to 155 thousand tonnes valued at about Rs. 9 crores. In certain years, such as 1954-55, 1957-58, 1958-59 and 1962-63, the imports exceeded the home production or were nearly equal to it as in 1960-61. In other years they constituted 62 per cent to 82 per cent of the production.

6. We obtain our outside supplies of cashew nuts from the African countries, specially Mozambique and Tanganyika which together meet 94 per cent to 99.5 per cent of our imports. We import practically all the exportable supplies of Africa. There has been a significant change in recent years in the relative unit values of our imports of cashewnuts from different countries. During 1956-57 to 1958-59, supplies from Mozambique used to be the dearest and those from Kenya the cheapest. Thereafter, it has been the other way about except in 1963-64 when the two stood at par.

7. About 200 factories are engaged in the processing of cashewnut kernels in India. Quilon, with some 150 units, is the main centre of production. Other important centres are Calicut, Mangalore and Goa. Processing factories are situated at distant places from the centres of plantations. Processing factories should be set up in the vicinity of plantation areas. There

is also need for introducing modern methods of processing (including cleaning, washing and sizing, before raw nuts are roasted) in the cashew industry, for improving the quality of cashew kernels as also to bring down the cost of production. The Indian Cashew Trade Mission which visited Italy and France recently has reported that technological developments, which have recently taken place in the mechanical processing of raw nuts in Italy, raised the proportion of whole nuts to 55 to 60 per cent. This poses a real challenge to our country.

EXPORT PROMOTION

8. **Demand**—We have built up a large industry for processing home-produced and imported cashew nuts. About three-fourth of our kernel production is exported. The imports of cashew-nuts have a vital bearing on their economy. It is, therefore, a matter for concern that pilot processing units have started functioning in the cashew-nut producing centres of Africa, viz., Mozambique, Kenya and Tanganyika. Mechanical processing of cashew-nuts is being attempted in Portugal, Italy and United Kingdom. Similarly, efforts are being made by Brazil to set up cashewnut processing units. These developments have begun to tell adversely both on the overseas demand for our cashew kernels and on the supplies of raw cashew-nuts from abroad. India used to enjoy a virtual monopoly in the export trade of cashew kernels until recently. But India's relative importance in this respect has slightly declined in recent years. For example, her share (by value) in the imports of cashew kernels by U.S.A., the largest buyer of our cashew, came down from 99 per cent in 1950 to 92 per cent in 1963. There is need for us to have a long-range programme of imports of cashew-nuts and to generate a sufficiently strong consumer preference in favour of Indian cashew kernels in America, Asia and Europe, as there is a world-wide potential demand for cashew.

9. In U.S.A. propaganda for popularising the use of cashew kernels in the confectionery and baking industry specially for lower grades of the produce, would help increase the in-take. During the course of a market survey on cashew-nuts in Switzerland, one of the most important Swiss chocolate firms pointed out the need for conducting scientific research to ascertain whether cashew-nuts can retain their flavour after dehydration. If the results are favourable, the use of cashew-nuts in chocolates could increase substantially.

10. The per-capita consumption of cashew kernels is quite low in most of the importing countries except East Germany, U.S.A., Australia and Hong Kong. Considering their relative economic prosperity, the countries of Latin America, East Asia and Western Europe offer an excellent opportunity to increase our cashew kernel exports. It would be helpful to conduct market surveys in these countries to gauge the extent of demand, the nature of consumer preferences etc. West Europe offers a potential market for cashew and there is a growing need to step up our promotional activities in that region.

11. Our exports to U.S.A., our largest buyer, have been mainly in the traditional pattern of bulk consignments. Hence it may be difficult to popularise the consumer packs there. On the other hand, there are no vested interests or any established patterns in Western Europe. The Cashew Trade Mission, which recently visited Italy and France has emphasised very strongly the need for us to take advantage of the situation and to acquire a strong hold in Western Europe before others steal a march over

us. The best method to enter the sophisticated European markets seems to be through collaboration with firms in those countries to ensure attractive packaging and effective distribution arrangements.

12. At present the prices of other nuts (hazel, almond and walnut) except pea-nuts are comparatively much higher than those of cashew-nuts in these markets. Due to the inadequate advertisement and publicity, the consumer is not fully aware of the fact that cashew is by far superior and cheaper to them. There is, thus, an urgent need for undertaking a vigorous publicity campaign in U.K., other West European countries, Canada, Australia, New Zealand and Japan which offer the greatest potentialities for our cashew exports. The following suggestions deserve consideration in this respect:

(i) Concentration on consumer sales points like super-markets and departmental stores. Distribution of cashew in attractive cellophane packets and effective displays of folders and other advertisement materials should be arranged at such centres.

(ii) A tie-up with one of the distributors of a popular drink like Messrs. Martini Rossi of Paris for projecting the cashew image with their drink. Participation in all important fairs and exhibitions in Europe.

(iii) Visits to Europe by exporters and developing personal contacts.

13. In order to enable cashew exporters to improve packaging and merchandising of cashew, the Government should assist them with quotas/import licences for tin plates, cardboard cartons, craft-lining, etc., until we are able to produce them indigenously to the required extent.

14. **Supplies**—There has been in recent years a progressive deterioration in the quality of raw cashew nuts imported from Africa. As a result of this, cashew manufacturers were losing heavily on the bad nuts imported. Valuable foreign exchange was also wasted on the importation of bad nuts. But the position has improved from April, 1963. The import of cashew-nuts is not now allowed without the production of standard contract forms signed both by the buyer and the seller.

15. To reduce the dependence of our cashew industry on alien sources for the supply of basic raw material, the Government of India as also the State Governments, are taking steps to increase the production of cashew-nuts. The area under cashew nuts in India has increased considerably during recent years from 1.81 lakh acres in 1954-55 to 3.75 lakh acres in 1963-64 (taking fruit bearing cashew acreage i.e., more than 5 years' old). A vast increase in cashew cultivation is planned. The acreage is estimated to go up to 13.37 lakhs by the end of the Fourth Plan. The production, too, has reported a substantial increase, (from 63,000 tonnes in 1954-55 to 136,000 tonnes in 1962-63). It is expected that the production at the end of the Third Five Year Plan will exceed the target of 152,000 tonnes and at the end of the Fourth Plan will exceed 3 lakh tonnes. The yield rate on the additional area will be lower than that on existing acreage because most of the extension in cultivation will be on marginal land and the new plantations will reach the peak of their production later, say, in the seventh or eighth year. The data on area and production of cashew-nuts and the scope for the extension of cashew cultivation are not reliable enough. A scientific survey of these aspects is called for.

16. There is considerable variation in yield from tree to tree. With the establishment of 5 Regional Research Stations in the States of Kerala, Mysore, Assam, Maharashtra and Andhra Pradesh, assisted by a large number of State Horticultural Research Stations, the research programme for evolving more productive strains is making headway. Growers are being encouraged to cover suitable areas with productive strains of cashew plants. A number of State nurseries are engaged in raising suitable plants for extension of cashew cultivation. In view of the large-scale programme of cashew cultivation, adequate provision for research and development should be made.

17. Sustained interest of the primary producers is vital for any programme of increased production. They should get their legitimate share from the overall gains of the industry. Suitable incentives should be offered to the cultivators specially in new areas, viz., Assam, Orissa, West Bengal and Madhya Pradesh to evoke the requisite response for the ambitious programme of extension of cashew cultivation. Cashew holdings should be exempted from ceiling laws. Assistance in the shape of loans and subsidised supply of fertilisers should be given to cultivators. The itinerant merchants enjoy a virtual monopoly in the field of cashew collection and retain the major gains obtained from the ever rising prices of raw cashew nuts. The producers' share is estimated at only about 50 per cent of the raw nut price at the factory.

18. There is need to organise cooperatives as the primary collection and marketing agencies in the cashew nut growing areas. These should meet the financial and other needs of the producers and, thereby save them from the clutches of intinerant merchants. These cooperatives can be strengthened to take over the control of a few cashew processing and packing units.

19. The desirability of setting up a Cashew Board, as has been formed in Tanganyika, should be considered. Such a Board can coordinate the work of development of cashew products in the various States by making available suitable land, promotion of selective planting, giving necessary aid to the planters by way of technical advice, fertilizers, pest control measures and affording other incentives on the lines adopted by other statutory boards. The board can also take steps to register the planted area and thus provide statistics of production. The competition among processors for the purchase of cashewnuts can be minimized by ensuring equitable distribution of the produce among the processing units. It can also improve the processing technology by research work aimed at achieving better results in the output of kernels and shell oil.

20. **Quality Control**—Growers very often pick immature nuts. Good quality kernels cannot be recovered from immature nuts and, as such, there is need to educate the peasantry to pick only mature nuts. There have been complaints about the quality of cashew kernels exported and the *ad-hoc* Committee on quality control and pre-shipment inspection had recommended the necessity of introducing compulsory quality control on this commodity prior to export. This has been introduced with effect from April, 1963. The quality control scheme should be oriented for the benefit of producers, so that it may make an impact on the marketing system and help the producer in obtaining the best returns for his cashewnuts. Unless the primary producer can be assured of an economic return for his produce, it would be difficult to sustain a large-scale production programme.

21. It has been represented that the policy of grant of subsidies to crops is discriminatory towards cashewnut. In the case of certain crops, like rubber, irrecoverable subsidies are granted. The grant of such subsidies will provide an incentive to cultivators to increase the production of cashew.

22. A cess of ½ per cent ad valorem is levied on cashew kernels exported from India. In the context of our attempts to boost exports, this appears anomalous.

23. It has been reported that sales tax is charged at the purchase point at the rate of 4 per cent in Kerala and 2 per cent in Mysore, whereas there is no such tax in Mardas. It has, therefore, been represented that the manufacturers and exporters in areas having higher taxes suffer from a handicap. This may be looked into.

24. The railway freights should be reduced on raw nuts from growing to processing centres, and on cashew kernels and cashew shell liquid moving to ports of shipment.

25. **Cashew Shell Oil**—An important bye-product of the cashew kernel industry is cashew shell oil. We are presently recovering about 5 to 7 thousand tonnes of cashew shell oil per annum. There are a number of uneconomic units which are still using the out-moded methods of processing. These units not only produce inferior quality kernels but also waste precious cashewnut shell oil during the process of kernel recovery. Use of modern machinery like oil-bath unit, which results in better recovery of kernels and economic utilisation of bye-products, is the need of the day. With improvements in the method of processing, an additional quantity of 9 to 10 thousand tonnes of cashew shell oil can be obtained annually.

26. Statistics showing exports of cashewnut shell oil to various countries are given in Appendix III. We exported a little over seven thousand tonnes of this oil and earned about Rs. 77 lakhs of foreign exchange annually during the four year period ending 1963-64. Both the volume and value have been rising steadily.

27. It is feared that, with the increasing production of synthetic resins, the consumption of cashewnut shell oil in the importing countries may go down. There is, therefore, need to undertake research on new uses of this oil.

28. There is also scope for extracting liquor from cashew apples. The Indian Central Spices and Cashewnut Committee or the Council of Scientific and Industrial Research may set up a pilot plant for the manufacture of beverages, syrups, chutneys and drinks etc. from cashew apples. At present 2.5 to 3 lakh tonnes of cashew apples are produced annually. But hardly 15 per cent of this valuable source of food is being utilised.

EXPORT TARGETS

29. The target of production of cashew nuts is 152,000 tonnes by the end of the Third Plan. Assuming that imports and home consumption are maintained at the existing levels, it should be possible to export about 58,000 tonnes by the end of the Third Five Year Plan. For the end of the Fourth Five Year Plan our target of production of cashew nuts is expected to be about 3 lakh metric tonnes. In view of this, our target for the exports of kernels may be fixed at about 70 thousand tonnes per year. In terms of value this would be about Rs. 28 crores at current export prices.

CONCLUSIONS AND RECOMMENDATIONS

1. Cashew processing factories should be set up in the vicinity of plantation areas. There is also need for introducing modern methods of processing. (Para. 7)

2. Pilot processing units have started functioning in the cashew-nut producing centres of Africa. Consequently, our share in the imports of cashew kernels by U.S.A. has declined during the sixties by about 7 per cent. There is need for us to have a long-term programme for the import of cashewnuts and also to generate a sufficiently strong consumer preference for our cashew in several countries of America, Asia and Europe. (Para. 8)

3. In U.S.A. propaganda for popularising the uses of cashew kernels in the confectionery and baking industry, specially for lower grades of cashew kernels, would give a fillip to the demand for cashews. If our cashewnuts are found to retain their flavour after dehydration, their use in chocolates could increase substantially. (Para. 9)

4. Considering the relative economic prosperity and per capita consumption of cashew, the countries of Latin America; Africa and Western Europe offer an excellent opportunity to increase our cashew exports. Market surveys should be undertaken in these countries to gauge the extent of demand and the nature of consumer preference. (Para 10)

5. The best method of entering the sophisticated West European markets seems to be through collaboration with firms in those countries to ensure attractive prackaging and effective distribution arrangements. (Para. 11)

6. There is an urgent need for a vigorous publicity compaign in these countries, e.g., U.K., other European countries, Canada, Australia, New Zealand and Japan, which offer the greatest potentialities for our cashew exports. Several measures are needed to make our publicity effective in these countries. (Para. 12)

7. The Government should assist cashew exporters with quotas/import licences for important articles needed by them. (Para. 13)

8. The data on area and production of cashew nuts and on the scope for extending cashew cultivation are not reliable enough. A scientific survey is called for. (Para. 15)

9. In view of the large-scale programme for cashew cultivation, adequate provision for research and development should be made. (Para. 16)

10. Suitable incentives, e.g., exemption from ceiling laws, provision for loans and subsidised supply of fertilisers should be offered to cultivators to evoke the requisite response for the ambitious programme of cashew cultivation. The producers should get a legitimate share of the price fetched by cashew-nuts. (Para. 17)

11. Marketing co-operatives capable of collecting cashew-nuts from the producers' farms should be set up. (Para. 18)

12. The desirability of setting up a Cashewnut Board as has been formed in Tanganyika, should be examined. (Para. 19)

13. Compulsory pre-shipment inspection and quality control on export of cashew introduced recently has had a salutary effect on exports. Quality control schemes should be run for the benefit of the producers. (Para. 20)

14. Irrecoverable subsidies like those given for rubber should be given for cashew also. (Para. 21)

15. There is little justification for the imposition of agricultural cess on cashew kernels exported from India in the context of our attempt to boost exports. (Para. 22)

16. The State Governments may be requested to consider the question of having a uniform rate of sales tax on cashew-nuts, if they cannot be persuaded to abolish it altogether. (Para. 23)

17. Railway freights should be reduced on raw-nuts, cashew kernels and cashew shell oil. (Para. 24)

18 Use of modern machinery, like oil bath unit, for the extraction of cashew oil is the need of the day. (Para. 25)

19. There is need to undertake research on new uses of cashew shell oil. (Para. 27).

20. The Indian Central Spices and Cashew-nut Committee or the Council of Scientific and Industrial Research may examine the possibility of setting up a pilot plant for the manufacture of beverages, syrups, chutneys and drinks etc. from cashew apples. (Para. 28)

21. The target for the export of cashew kernels should be 58,000 tonnes per year by the end of the Third Plan and about 70,000 tonnes per year by the end of the Fourth Plan. (Para 29)

APPENDIX I

Exports of Cashew Kernels

Year	Quantity in tonne	Value (Rs. in lakhs)	Value per tonne (Rs.)
1951-52	21,645	904·90	4,181
1952-53	28,245	1,297·74	4,578
1953-54	27,657	1,099·06	3,974
1954-55	34,558	1,069·68	3,095
1955-56	31,358	1,292·46	4,122
Average First Plan	28,713	1,132·77	3,945
1956-57	31,557	1,453·47	4,606
1957-58	36,779	1,515·70	4,121
1958-59	41,021	1,585·26	3,865
1959-60	38,791	1,605·13	4,138
1960-61	43,625	1,891·30	4,335
Average Second Plan	38,355	1,610·17	4,198
1961-62	41,755	1,817·05	4,352
1962-63	48,558	1,936·12	3,987
1963-64	50,995	2,141·48	4,199

सत्यमेव जयते

APPENDIX II

Share (in terms of percentages) of different Countries in India's Export of Cashew Kernels

Country	Average 1956-57 to 1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
U.S.A. . .	69·96	69·72	58·18	58·08	55·48	56·15	55·64	55·71
U.S.S.R. . .	9·64	10·27	14·39	15·35	10·66	11·03	15·33	15·79
Australia . .	1·94	2·21	3·18	3·58	3·21	3·51	3·04	3·37
Bahrein . .	0·07	0·08	0·11	0·10	0·10	0·11	0·08	0·09
Belgium . .	0·24	0·17	0·37	0·23	0·39	0·27	0·33	0·26
Canada . .	3·29	3·52	3·66	4·07	2·95	3·12	3·13	3·23
East Germany .	1·06	0·96	4·43	3·81	8·87	7·81	6·58	5·76
West Germany .	2·17	1·98	2·53	2·41	2·43	2·30	2·68	2·56
Hong Kong . .	0·62	0·64	1·00	1·01	0·78	0·77	0·70	0·82
Kuwait . .	0·03	0·06	0·04	0·04	0·07	0·07	0·08	0·10
Malaya . .	0·10	0·10	..	..	0·12	0·11	0·12	0·13
Netherlands . .	0·47	0·75	1·18	1·03	1·29	1·13	0·99	0·91
New Zealand . .	0·31	0·30	0·50	0·49	0·39	0·39	0·30	0·30
Singapore . .	0·19	0·20	0·20	0·20	0·16	0·18	0·22	0·27
Sweden . .	0·47	0·86	0·47	0·30	0·42	0·31	0·26	0·21
Switzerland . .	0·14	0·11	0·10	0·08	0·08	0·08	0·14	0·11
United Kingdom .	7·43	7·18	7·45	6·93	5·10	4·87	5·21	5·02
Others . .	1·84	1·33	2·21	2·26	7·50	7·79	5·17	5·36
Total .	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

APPENDIX III

Exports of Cashewnut Shell Oil from India

Name of Importing Countries	1960-61		1961-62		1962-63		1963-64	
	Quantity (Metric tons)	Percentage	Quantity (Metric tons)	Percentage	Quantity (Metric tons)	Percentage	Quantity (Metric tons)	Percentage
U.K. . .	3,159	54·16	2,911	46·73	2,561	34·38	2,761	29·28
France . .	53	0·91	40	0·64	24	0·32	63	0·67
Italy . .	152	2·61	1	0·02	64	0·86	..	..
Japan . .	1,011	17·16	895	14·37	1,129	15·16	1,451	15·39
U.S.A. . .	1,189	20·38	2,281	36·61	3,274	43·96	4,764	50·52
Australia . .	247	4·23	35	0·56	314	4·22	183	1·94
Other Countries .	32	0·55	67	1·07	82	1·10	207	2·20
Total .	5,833	100·00	6,230	100·00	7,448	100·00	9,429	100·00

CHAPTER V

TOBACCO

1. India is one of the three principal suppliers of tobacco to the world markets, the other two being U.S.A. and China. India exports both unmanufactured as well as several kinds of manufactured tobacco. Statistics showing the annual quantum and value of exports of various types of unmanufactured tobacco from India during the years 1956-57 to 1963-64 are given in Appendix I. We exported about 63,000 metric tons of unmanufactured tobacco, valued at about Rs. 21 crores during 1963-64. The quantum of annual exports of tobacco has fallen and risen alternatively during the period 1956-57 to 1963-64, except in 1963-64. The fluctuations have ranged between 3 per cent and 15 per cent except in 1962-63 when the exports rose by 36 per cent. India's annual share (value) in world exports of tobacco is very small and varied between 3 and 4 per cent during 1959—1962.

2. The foreign exchange earnings from exports depend on the nature and extent of variation in quantity exported as well as the unit value. One tonne of unmanufactured tobacco fetched Rs. 3,315 in 1963-64. The unit value varied between Rs. 2,883 and Rs. 3,574 during the above period. The unit values varied inversely with the quantum during these years, except in 1961-62 and 1963-64. This neutralised the effect of changes in volume. Variations in the foreign exchange earnings ranged between 4 per cent and 17 per cent, except in 1962-63 when they rose by 28 per cent. Virginia is the staple export variety, accounting for about 81 per cent of the quantum and 89 per cent of the value of our tobacco exports in 1963-64. The unit value of the virginia was thus higher than the average.

3. Statistics showing the relative importance (in terms of percentages) of the countries importing our tobacco during 1956-57 to 1960-61 (annual average) and 1961-62 to 1963-64 are given in Appendix II. There has been a phenomenal change in the relative importance of the share of U.K. in our exports of tobacco. Her share in quantum, which averaged 44 per cent per year during the Second Plan period, declined to 26 per cent by 1963-64. On the other hand, the intake of U.S.S.R. and other countries went up from 3,115 tonnes and 7,836 tonnes respectively, on an average during the Second Plan period to 19,192 tonnes and 22,043 tonnes respectively in 1963-64. The absolute intake of U.K. also declined during this period but only by 14 per cent, viz., from 19,202 to 16,553 tonnes. The share of U.S.S.R. rose during this period from 7 per cent to 30 per cent. The decline in the relative share of U.K. is, thus, attributable more to the rise in the total quantum, due to the development of trade with U.S.S.R. and other countries, than to the reduction in the in-take by U.K. The phenomenal rise in the in-take of 'other countries' was due to the expansion in demand from Aden, Poland, Germany East and Yugoslavia, though the in-take of Yugoslavia during 1963-64 showed some decline. The notable feature in 1963-64 was the re-entry of Japan in the Indian markets for the purchase of Rs. 1.0 crore worth of tobacco after the lapse of nearly a decade.

4. The unit value of tobacco exported to U.S.S.R. is, however, much lower than that realised by exports to U.K. Consequently, the relative contribution of U.S.S.R. to our export earnings was only 23 per cent in 1963-64 as compared to 46 per cent contributed by U.K. with a slightly lower in-take. Due to this, the average unit value of our exports has fallen from Rs. 3,422 in 1959-60 to Rs. 3,315 in 1963-64 and the export earnings have risen during this period by about 54 per cent only, though the volume went up by about 59 per cent.

5. In the beginning of the tobacco season this year, the growers were very much perturbed due to the unexpected rise in the production of low quality tobacco. In order to devise ways and means to avert the possibility of heavy accumulation of stock, a Tobacco Convention was held at Guntur in July 1964 which recommended that trade delegations should be sent to Africa and Europe. The Government of India recently constituted an *ad-hoc* committee to review all aspects of tobacco trade and to streamline it from the production to the shipping stage.

6. As a result of the delegation which had been sent earlier to Japan by the Export Promotion Council, substantial orders were received from that country in 1964-65. In addition the Government sent two delegations—one to West Europe and the other to East European countries. Due to their efforts, we have been able to secure additional orders which are expected to reduce expected surplus in 1964-65 from 16,000 to about 3,000 tonnes only which is not abnormal. This shows the vital need of sizing up market trends and creating demand for our tobacco in foreign markets and the valuable role which our trade delegations can play in meeting this need.

7. **Manufactured tobacco**—We also exported about 1,590 metric tonnes of manufactured tobacco valued at about Rs. 66 lakhs during 1963-64 as can be seen from Appendix III. The bulk of the exports consist of bidi tobacco, accounting for 58 per cent of the quantum, followed by hookah tobacco and bidis with 28 per cent and 8 per cent respectively in 1963-64.

सत्यमेव जयते

8. The exports had fallen considerably in 1961-62 but the position improved in 1962-63 only to again recede in 1963-64. The unit value rose in 1961-62 but less than proportionately the fall in quantum. In 1962-63, the fall in unit value was proportionately greater than the rise in quantum. in 1963-64 there was a fall both in quantum and unit value. The decline in 1963-64 is attributable to the sharp decline in the imports of bidi and bidi tobacco by Ceylon due to the restriction imposed by her on the imports of foreign bidi. Consequently our earnings from this source have been declining since 1960.

EXPORT EXPANSION

9. **Demand factors**—The Tobacco Delegation sponsored by the Tobacco Export Promotion Council which toured some foreign countries in 1962 has made several suggestions for developing overseas demand for our tobacco. Some of these are—

(i) There is a possibility of supplying tobacco to East Germany in composite grades so that they may not have to mix them again at the time of manufacture. Agricultural Marketing Adviser should be asked to introduce a new grade if this is possible.

(ii) There is a good demand for Burley tobacco. The Indian Central Tobacco Committee should interest tobacco growers in the production of this tobacco.

(iii) During their visit to U.K., the delegation received complaints to the effect that the official reports and other statistics about Indian tobacco crop and prices published by Indian Central Tobacco Committee were sometimes out-dated and that the interested parties were not able to get current information at any time. We should make efforts to publish periodically up-to-date statistics as soon as they become available.

(iv) During their visit to West Germany, it was revealed that the German preference was for neutral, thin, well ripe and open grained tobacco. They were not much bothered about the colour. The nicotine content should be preferably as low as 1 per cent. In order to advise us on producing the type of tobacco, which would suit the West German market, the services of an expert from West Germany were requisitioned sometime back. The expert conducted experiments in India from 1958-59 to 1960-61. On the basis of results of these experiments, he had expressed the view that Indian tobacco could be made to suit the West German preferences, provided certain agronomical practices were adopted. A five-year project estimated to cost Rs. 4.54 lakhs to grow varieties of tobacco suited to the West German markets was initiated during the year 1962-63. This project should be completed as, due to the cancer scare, demand for tobacco with low nicotine content is also likely to come from other countries.

(v) The delegation has also reported that there was demand in Belgium, Poland, East Germany and West Germany for our cigar filler tobacco. This should be further investigated.

10. The *Ad-hoc* Committee has recommended the following measures for developing overseas demand for our tobacco:—

(i) Foreign delegations of manufacturers should be periodically invited during the tobacco growing and marketing season in order to develop close contacts with them and also to make them aware of the grades to suit their requirements.

(ii) It is desirable to undertake publicity for Indian tobacco in foreign markets and to open offices in the main consuming regions for compilation and dissemination of important information.

(ii) The Government of India should take up the question of reduction or elimination of tariff by weight on tobacco in the European Common Market countries.

These recommendations should be examined and necessary action taken expeditiously.

11. Preference has recently shifted from lemon to orange colour. The U.K. market, which was all along showing preference for lemon colour, now prefers the orange colour. Ripe and slightly over-ripe leaves, when cured, become orange in colour, while leaf harvested before full maturity tends to assume lemon colour on curing. Fully ripe orange coloured tobacco falls under medium grades. The cultivators in India resort to premature

harvesting because the foreign buyers start marketing operations simultaneously with the commencement of curing by the farmers and give a deadline to their suppliers to complete the purchases. The Tobacco Export Promotion Council have addressed the London Chamber of Commerce requesting them to adjust the timing and period of their marketing operations so that the cultivators can wait for curing till the leaves become fully ripe. The matter should be pursued.

12. **Processing**—It is essential to adopt scientific methods for the redrying of tobacco as this would determine the quality of tobacco. There are at present 29 redrying factories in India. It is understood licences have been issued for the import of ten more plants. Efforts should be made to see that these are installed early. If there is demand for more re-drying plants, it would be a false economy not to meet it.

13. **Export Potential of Different Varieties**—Tobacco grown in India is of two botanical species, namely *Nicotiana tabacum* and *Nicotiana rustica*. *Nicotiana tobacum* is more important and is more widely grown, accounting for 85 per cent of the total production. The various varieties of this tobacco are used in the manufacture of cigarettes, cigars, cheroots and bidis as well as for preparing chewing, snuff and hookah tobaccos. *Nicotiana rustica* is used mainly in the manufacture of hookah, chewing and snuff tobaccos. The former variety is mainly exported, while the latter is almost wholly consumed within the country.

14. Cigarette tobacco constitutes the largest share in the total production of tobacco in India followed by bidi tobacco, their respective shares being estimated at 25.8 per cent and 24.4 per cent. Chewing, hookah and cigar and cheroot tobaccos follow in the descending order of importance, their shares being 21.0 per cent, 19.3 per cent and 8.3 per cent respectively. The production of snuff tobacco is, however, very small and accounts for only about 1.2 per cent of the total production. Among the cigarette tobaccos the Virginia is the most important and is grown mainly in Guntur, East and West Godavari, Krishna and Nellore districts of Andhra Pradesh. It is also cultivated to a small extent in Mysore and Gujarat States. The chief variety of cigarette tobacco grown in India is the 'Harrison Special' the others being Chatham, Virginia Gold and Delcrest. In addition to Virginia tobacco, white Burley and Natu (country) grown in Guntur district of Andhra Pradesh and Desi tobacco grown in Bihar are also used in the manufacture of low-grade cigarette as well as of pipe and shag mixtures. The primings of Natu tobacco, otherwise known as Jutty, are also utilised for the manufacture of low-grade cigarettes.

15. Appendix IV shows the production of Virginia tobacco along with the total production of tobacco in India since 1949-50. There has been a progressive rise in our production of tobacco. As against 268 thousand tonnes in 1949-50, the production stood at 336 thousand tonnes in 1963-64, exceeding the Third Plan target by 6 thousand tonnes. The annual average for the Second Plan period was 292 thousand tonnes as against 257 thousand tonnes for the First Plan period. The annual fluctuations have been limited in range. During these 15 years (1949-50 to 1963-64) the production dropped only six times and the maximum fall was of the order of 21 per cent. In other years, it rose by 1 per cent to 19 per cent except in 1958-59 when a rise of 32 per cent occurred. The target of production of tobacco at the end of the Fourth Plan has been tentatively fixed at 468 thousand tonnes.

16. The annual production of Virginia tobacco has also risen slowly but steadily from 38 thousand tonnes in 1949-50 to 84 thousand tonnes in 1962-63. There was a slight fall in 1963-64, viz., to 82,000 tonnes. The annual average went up from 54 thousand tonnes during the First Plan period to 63 thousand tonnes during the Second Plan period, or, by about 17 per cent. The production of Virginia tobacco has risen faster than that of other varieties. Consequently, 24 per cent of our tobacco production now consists of this variety as against 21 per cent during the First Plan period, 22 per cent during the Second Plan period and 14—17 per cent in the pre-Plan years.

17. Our yield (per hectare) of tobacco is low (830 Kg.) in 1962-63 compared to that of some foreign countries like Rhodesia (940 Kg.) U.S.A. (2120 Kg.) and Japan (2170 Kg.). There is need to effect a general improvement in the yield by the adoption of better agronomic practices.

18. The problems about the production of various vareieties/grades of tobacco are discussed below:—

Virginia Tobacco—An important point to be taken note of is that the bulk of our production still consists of tobaccos other than Virginia (Appendix I). This points to the need for sustained efforts to increase the production of Virginia tobacco. The Government has taken a number of steps in this direction. The more important of these are indicated below:—

(i) Trial plots for growing flue-cured Virginia tobacco have been laid in new and potential areas like Jamnagar, Umrala, Thasara, Kholwad and Banks of Sabarmati river in the Vijapur area of Gujarat State; Ankalgi, Aktangihal areas of Kindernad and Dharwar in Mysore State, Salem and Dharampuri in Madras State.

(ii) The scheme for the distribution of pure and pedigree seeds and seedlings is being expanded. It is expected that the entire Virginia tobacco growing area would be under improved seeds and seedlings by the end of the Third Five Year Plan.

(iii) 8,000 tonnes of ammonium sulphate had been allocated during 1962-63 for distribution to tobacco growers. A similar allocation was made for the year 1963-64.

(iv) Arrangements for (a) establishment of coal dumps at strategic points to ensure steady and regular supply of coal for flue-curing and redrying and (b) supply of G.C. sheets required for barns for flue-curing Virginia tobacco on a priority basis have been made.

(v) Publicity and propaganda for large-scale adoption of higher and better yielding varieties of Virginia tobacco like Delcrest. Virginia Gold, etc. have been undertaken through extension staff. Extension and demonstration lectures are being conducted to bring home to the farmer the results of research in the improved methods of cultivation, harvesting, curing etc. Training in improved methods of tobacco cultivation, curing, handling, processing, etc. is also given to all interested in it at the Indian Central Tobacco Committee Research Institute.

19. It will be seen that efforts are being made to increase the production of Virginia tobacco in India. However, there is still scope to implement the above schemes in a more vigorous fashion. To improve the quality and production of Virginia tobacco, the *ad-hoc* Committee on Tobacco (para 5 ante) has made the following recommendations:—

(i) The production of Virginia tobacco on saline and unsuitable soils should be progressively eliminated at an early date. For this purpose, the Government of Andhra Pradesh will have to undertake legislation banning the plantation of tobacco in villages notified from time to time. It is suggested that villages where 50 per cent of the area is known to be saline or unsuitable for tobacco cultivation, should be notified to start with.

(ii) The Central Excise authorities should devise suitable measures to control the movement of saline tobacco to ensure that it retains its identity from the production to the packing stage. The Directorate of Marketing and Inspection should explore possibilities of evolving suitable grade specifications for saline tobacco.

(iii) The results of the research done by the Indian Central Tobacco Committee should be put to practical use as early as possible.

(iv) Machinery, implements and instruments capable of improving quality and yield such as high power tractors, hygrometers may be imported through the S.T.C. and placed at the disposal of the cultivators on suitable terms.

20. **Cigar Tobacco**—It is felt that if India could produce cigar tobacco suitable for the American Market, this tobacco may have good export potential. The production of cigar tobacco is confined to South Madras. It has been declining fast. From 4,000 tonnes in 1957-58, it shrank to 2,000 tonnes in 1958-59 and to 1,000 tonnes in 1960-61. This was due to the increase in cigarette smoking in our country in recent years. Exports of cigar tobacco have been small due mainly to the shortage of quality cigar wrapper tobacco in the country and general restrictions on tobacco imports. Experiments have been made at the I.C.T.C.s Research Station at Dinhata (East Bengal) to grow superior quality wrapper tobacco and the results show promise. Till the Production of improved cigar wrapper tobacco is developed on a commercial scale, it may be allowed to be imported.

21. America was purchasing substantial quantities of cigar tobacco from Cuba. In view of the strained relationship between the two countries, enquiries have been made if India could supply this kind of tobacco to U.S.A. In order to grow cigar tobacco, which would suit America, samples of American cigar tobacco seeds have been imported and experiments are under way to find out if they could be produced suitably under Indian conditions for export to U.S.A.

22. The tobacco delegation which visited foreign countries in October 1962, has expressed the view that on account of the scare created by the medical opinion against cigarette smoking, there is a noticeable decline in the consumption of cigarettes, specially in U.K. and that cigars and cigarillos are becoming more and more popular. We should take advantage of this situation and take immediate steps for the production of cigar tobacco in the country.

23. **Bidi Tobacco**—The indigenous production of bidi tobacco is quite adequate to meet the domestic and export demand.

24. **Marketing Conditions**—The grading and marketing of tobacco within the country are not done on desired lines. Provision of suitable facilities for grading and marketing will not only go a long way in increasing the return per hectare but will also induce the growers to improve the quality of their produce. Both these will make for a reduction in the unit cost of production and will improve our competitive position in the world markets.

25. Although tobacco is one of the scheduled articles for regulation in Andhra Pradesh, no regulated markets for tobacco are functioning at present in this State—the most important tobacco growing State in the country. Extension of regulation to tobacco and making it obligatory that only tobacco graded in accordance with Agmark standards is sold in such markets will help the growers in obtaining prices commensurate with the quality of their produce. This will also serve as an incentive for improving the quality. The Government of Andhra Pradesh should prepare a programme for establishing a large number of rural grading centres at the farmers' level.

26. As the small growers find it difficult to undertake grading on the basis of Agmark grades because of the small quantities marketed by them and for want of required facilities, cooperative societies should be organised all over the cigarette tobacco growing areas in Andhra Pradesh. These societies can take up pooling and grading of members' tobacco under Agmark before sale. The Directorate of Marketing and Inspection may examine the possibility of evolving simple grade specifications which can be easily adopted by the growers. The Directorate may assist rural grading centres (as those suggested above for Andhra Pradesh) by providing trained personnel for guiding the farmers in grading work and educating them in its importance.

27. **Ocean Freight**—The present freight rate for unmanufactured tobacco varies between Sh. 129 to Sh. 181/6 per cubic metre. The current freight rates are excessive and efforts may be made to get these reduced. Besides, the trade has also been opposed to the present system of deferred payment of freight under which a gross amount inclusive of rebate is first charged and a rebate is later given. The trade prefers a net freight rate.

28. **Storage and Warehousing**—Tobacco, if not properly stored, deteriorates in quality. Very often tobacco meant for exports has to be stored for a period of more than one year till suitable markets are secured for it. This points to the necessity of providing such storage facilities as will preserve the quality of tobacco. As the warm climate induces decomposition and fermentation, provision of proper cold storage and refrigerated warehousing facilities becomes all the more important. State or/and Central warehouses may be established for providing not only scientific storage but also for facilitating grant of bank credit against warehouse receipts.

29. **Credit**—The *ad-hoc* Committee has recommended that the facility of institutional finance to the growers of tobacco needs to be improved. At present the tobacco growers have to depend primarily on private credit which too is inadequate, selective in favour of large owners and much too

expensive for undertaking the improvements on a large scale. Under the existing pilot scheme of the Government of Andhra Pradesh in Ongole taluk, short-term loans are provided by the agricultural societies to the extent of Rs. 200 per acre subject to a maximum of Rs. 2,000. The Committee has recommended that the credit limit be raiseed to Rs. 300 per acre and the maximum to Rs. 3,000 per grower and the scheme should be extended to the entire Guntur district and the tobacco growing talukas in other districts.

30. **Quality Improvement**—The introduction of compulsory quality control on exports of various types of unmanufactured tobacco entering the export trade in 1945 has, no doubt, brought about improvement and standardisation of the quality of tobacco exported and is believed to have improved the reputation of Indian tobacco. However, the tobacco delegation, which visited foreign countries in October 1962 received a number of complaints about the quality of our tobacco despatched to foreign countries. In view of this, the quality control and pre-shipment inspection procedure needs to be tightened up.

31. **Supply of Coal**—During recent years, there have been complaints from the curers that the supply of coal so essential for flue-curing and redrying is irregular, inadequate and untimely. Considering that the coal requirement of tobacco industry is but a fraction of the total coal production, coal dumps should be set up by State Governments concerned to ensure adequate and timely supplies of coal for the curing and redrying of tobacco.

32. At present a cess at the rate of ½ per cent ad valorem is levied on the exports of tobacco, under the Agricultural Produce Cess Act, 1940. The revenue earned from this source has ranged between Rs. 5 and 9 lakhs during 1958-59 to 1961-62. In the context of the need to boost exports, this petty cess on exports is hardly justified.

33. **Tobacco Board**—The feasibility of forming a Tobacco Board on the lines of the Coffee/Tea Board may be considered.

34. **Export Targets**—The average annual exports of Virginia tobacco during the last four years have been about 55 per cent of the total production (*vide* Appendix V). The remaining quantities were consumed in the manufacture of cigarettes in the country. It is felt that at least 60 per cent of India's production of Virginia tobacco should be exported. This should be possible as, on account of high taxation and cancer scare, there should be a reduction in the utilisation of this tobacco for manufacturing cigarettes in the country.

35. The target of production of Virginia tobacco by the end of the Fourth Five Year Plan can be put at about 110 thousand tonnes. The target of exports of this tobacco by the end of the Fourth Five Year Plan should be about 65 thousand tonnes.

36. Appendix VI gives the production and exports of cigar and cheroot tobacco. The average of the exports during the last three years was 20 tonnes. This comes to hardly 1 per cent of the total production which was 22,000 tonnes in 1961-62. We should endeavour to produce cigar tobacco to suit the foreign consumers' tastes and export at least 20 per cent of the production.

37. The export target for all types of tobacco should be about 75 thousand tonnes per year by the end of the Fourth Plan.

CONCLUSIONS AND RECOMMENDATIONS

1. Agricultural Marketing Adviser should be requested to introduce a composite grade of tobacco as desired by some countries so that there may be no need to mix the tobaccos again at the time of manufacture. (Para. 9).

2. The Indian Central Tobacco Committee should interest tobacco growers in the production of Burley Tobacco. (Para. 9).

3. Efforts should be made to publish periodically up-to-date statistics about Indian tobacco crop and prices as soon as they become available. (Para. 9).

4. The project being carried out to grow varieties of tobacco suited to the West German markets should be completed quickly as, due to the cancer scare, demand for tobacco with low nicotine content is also likely to come from other countries. (Para 9).

5. The Tobacco Delegation has reported that there was demand in Belgium, Poland, East Germany and West Germany for our cigar filler tobacco. This should be further investigated. (Para. 9).

6. The *Ad-hoc* Committee recently constituted by the Commerce Ministry has recommended a number of measures, e.g., invitations to foreign delegations, greater publicity, reduction or elimination of tariffs. These should be examined and necessary action taken expeditiously. (Para. 10).

7. The Tobacco Export Promotion Council have addressed the London Chamber of Commerce requesting them to adjust the timing and period of their marketing operations so that the cultivators can wait for curing till the leaves become fully ripe. The matter should be pursued. (Para. 11).

8. It is essential to adopt scientific methods for the redrying of tobacco as this would improve the quality. It is understood that licences have been issued for the import of ten more redrying plants. Efforts should be made to see that these are installed early. If there is demand for more redrying plants, it would be a false economy not to meet it. (Para. 12).

9. Efforts should be made to effect a general improvement in the yield by adoption of better agronomic practices. (Para. 17).

10. Efforts should be continued to increase the production of Virginia tobacco. Care should be taken to see that the cultivators are supplied fertilizers in adequate quantities. Specific allocation of fertilizers exclusively for tobacco would be helpful. (Para. 18).

11. The *Ad-hoc* Committee has recommmended a number of measures for increasing yield and production of Virginia tobacco. These should be examined and given effect to as far as possible. (Para. 19).

12. There is a good demand for Indian cigar tobacco. Till the production of improved cigar wrapper tobacco is developed on a commercial scale, it may be allowed to be imported. Efforts should be made to grow cigar tobacco which suits American needs. In other countries too, due to the cancer scare, there is a shift in demand from cigarettes to cigars. Advantage should be taken of this by us. (Paras 20—22).

13. The grading and marketing of tobacco should be improved by (a) extension of regulation to tobacco in Andhra Pradesh, (b) establishing a large number of rural grading centres, (c) organising co-operative societies

which may pool and grade members' tobacco under Agmark before sale, and (d) evolving simple grade specifications and providing trained technical personnel. (Paras. 25-26).

14. Efforts should be made to get the present system of deferred payment of freight replaced by a net freight rate. (Para. 27).

15. State or/and Central warehouses may be set up for providing scientific storage and facilitating grant of bank credit against warehouse receipts. (Para. 28).

16. To develop facilities of institutional credit to tobacco growers, the pilot scheme initiated in Ongole taluq by Andhra Pradesh Government should be extended to the entire Guntur District and to other tobacco-growing areas. (Para. 29).

17. The quality control and pre-shipment inspection procedure needs to be tightened up. (Para. 30).

18. Efforts should be made to provide adequate supplies of coal for flue-curing and redrying of tobacco. (Para. 31).

19. In the context of the need to boost exports, the present levy ($\frac{1}{2}$ per cent ad valorem) on exports of tobacco under the Agricultural Produce Cess Act, 1940 should be abolished. (Para. 32).

20. The feasibility of forming a Tobacco Board on the lines of the Coffee/Tea Board may be considered. (Para. 33).

21. At least 60 per cent of India's production of Virginia tobacco and about 20 per cent of that of cigar and cheroot tobacco should be exported. The target of total tobacco exports can be fixed at about 75,000 metric tons in view of the production target of 468,000 metric tons of tobacco by the end of the Fourth Plan. (Paras. 34—37).

APPENDIX I

Statement showing the Quantities and Values of Various Types of Unmanufactured Tobacco Exported from India

Quantities (Metric tons)

Particulars	1956-57	1957-58	1958-59	1959-60	1960-61	Average 1956-57 to 1960-61	1961-62	1962-63	1963-64
Flue-cured Virginia	30,032	34,575	39,202	30,085	33,346	35,048	31,869	49,953	48,049
Sun-cured Virginia	137	917	1,285	1,751	761	970	1,584	3,090	3,338
Suncured country (Natu)	262	1,239	974	1,515	729	944	805	4,049	8,057
Bidi	27	101	33	61	20	49	53	33	24
Chewing	629	2,580	2,637	3,448	3,774	2,614	3,779	2,835	3,338
Cigars and Cheroots	1	12	146	19	19	40	21	41	14
Hookah	4	30	4	2	24	13	127	6	33
Stalk & stems	14	88	630	90	32	171	28	24	10
Others	4,193	1,383	1,257	2,787	7,070	3,342	6,158	199	518
Total	43,299	40,925	46,168	39,758	45,775	43,185	44,424	60,249	63,381

APPENDIX I—*contd.*

(Value in thousand Rupees)

Particulars	1956-57	1957-58	1958-59	1959-60	1960-61	Average 1956-57 to 1960-61	1961-62	1962-63	1963-64
Flue-cured Virginia	1,17,470	137,080	135,357	114,448	106,603	122,192	118,737	161,832	180,281
Sun-cured Virginia	263	2,147	2,641	2,682	1,666	1,880	4,726	5,577	7,651
Sun-cured Country (Natu)	207	2,798	2,757	2,938	1,708	2,100	1,634	8,438	16,647
Bidi	19	191	64	160	80	103	202	165	103
Chewing	745	2,770	3,792	4,931	4,921	3,432	5,209	3,577	4,738
Cigar and Cheroots	3	50	364	92	79	118	116	166	66
Hookah	5	101	20	12	119	51	623	24	16
Stalk & stems	13	30	113	24	49	46	12	19	4
Others	6,011	1,090	1,698	10,782	30,857	10,087	9,104	147	498
Total	124,834	146,257	146,808	136,069	146,082	140,010	140,263	179,945	210,104

सत्यमेव जयते

APPENDIX II

Share of Leading Importers in Overall Exports of Indian Tobacco

Quantity (Metric tons)

Country	(1956-57 to 1960-61) Average		1961-62		1962-63		1963-64	
	Quantity	Percentage share	Quantity	Percentage share	Quantity	Percentage share	Quantity	Percentage share
U.K.	19,202	44·46	17,383	39·13	16,161	26·83	16,553	26·12
U.S.S.R.	3,115	7·21	5,821	13·10	17,003	28·23	19,192	30·28
Irish Republic	956	2·21	..	..	19	0·03	35	0·06
Germany West	352	0·81	..	..	..	..	35	0·06
Netherlands	1,799	4·17	1,839	4·14	1,694	2·81	1,774	2·80
Belgium	1,760	4·08	2,131	4·80	1,707	2·83	1,980	3·12
France	351	0·81	1,485	3·34	2,104	3·49	8	0·01
Singapore	932	2·16	1,346	3·03	969	1·61	1,022	1·62
Malaya	312	0·72	6	0·01	1	Neg.	1	Neg.
Hongkong	906	2·10	302	0·68	795	1·32	738	1·16
China	4,618	10·69	..	..	..	..	..	..
Egypt	1,046	2·42	..	..	188	0·31	..	..
Others	7,836	18·16	14,111	31·77	19,599	32·54	22,043	34·77
Total	43,185	100·00	44,424	100·00	60,240	100·00	63,381	100·00

APPENDIX II—*contd.*

Value in (Rs. in lakhs)

Country	1956-57 to 1960-61 Average		1961-62		1962-63		1963-64	
	Value	Percentage share	Value	Percentage share	Value	Percentage share	Value	Percentage share
U.K. . .	1014·95	72·49	984·74	70·16	962·45	53·49	974·91	46·40
U.S.S.R. . .	48·33	3·45	109·77	7·82	331·77	18·44	486·35	23·15
Irish Republic .	54·34	3·88	..	..	0·43	0·02	1·73	0·08
Germany West .	5·64	0·40	..	..	..	..	0·93	0·04
Netherlands . .	27·56	1·97	25·54	1·82	29·30	1·63	35·11	1·68
Belgium . .	28·36	2·03	32·49	2·31	34·10	1·90	46·01	2·19
France . .	3·54	0·25	17·19	1·22	29·95	1·66	0·47	0·02
Singapore . .	14·58	1·04	41·87	2·98	31·72	1·76	35·23	1·68
Malaya . .	6·00	0·43	0·41	0·03	0·04	Neg.	0·07	Neg.
Hong Kong . .	11·31	0·81	4·06	0·29	13·24	0·74	12·63	0·60
China . .	40·52	2·39	..	..	..	..	..	..
Egypt . .	21·46	1·53	..	..	7·98	0·44	..	..
Others . .	123·51	8·83	187·57	13·37	358·47	19·92	507·60	24·16
Total .	1400·00	100·00	1403·63	100·00	1799·45	100·00	2101·04	100·00

APPENDIX III

Exports of Manufactured Tobacco from India

Q = Quantity in Metric tons
V = Value Rs. in lakhs.
VPT = Value per tonne in Rs.

Item	1960-61			1961-62			1962-63			1963-64		
	Q.	V.	V.P.T.	Q.	V.	V.P.T.	Q.	V.	V.P.T.	Q.	V.	V.P.T.
(*i*) Cigar & Cheroots	6	0·65	10,833	2	0·27	13,500	Neg.	0·03	..	2	0·17	8,500
(*ii*) Cigarettes	29	2·43	8,379	30	3·03	10,100	12	1·32	11,000	64	6·17	9,641
(*ii*) Bidis	725	80·13	11,052	362	40·77	11,262	265	31·58	11,917	129	14·56	11,286
(*iv*) Bidi tobacco	606	22·80	3,762	935	34·26	3,664	1,095	39·27	3586	921	32·00	3474
(*v*) Snuff	17	1·60	9412	15	1·44	9,600	13	1·49	11462	14	1·56	11143
(*vi*) Hookah tobacco	294	5·44	1850	513	11·01	2,146	581	12·82	2207	439	10·07	2294
(*vii*) Others	17	0·45	2647	26	0·81	3,115	42	0·82	1952	21	1·46	6952
Total .	1694	113·50	6700	1183	91·59	7742	2008	87·33	4349	1590	65·99	4150

Source :—"Monthly statistics of the Foreign Trade of India".
Neg. = Negligible.

APPENDIX IV

Production of Tobacco in India

(Thousand Metric tons)

Year	Production		Total	% of Virginia to total production
	Virginia	Others		
1	2	3	4	5
1949-50	38	230	268	14
1950-51	44	217	261	17
Average	41	223	263	16
1951-52	40	169	209	19
1952-53	54	191	245	22
1953-54	59	213	272	22
1954-55	56	199	255	22
1955-56	63	240	303	21
Average	54	203	257	21
1956-57	63	242	305	21
1957-58	48	192	240	20
1958-59	62	255	317	20
1959-60	71	215	286	25
1960-61	70	242	312	22
Average	63	229	292	22
1961-62	77	271	348	22
1962-63	84	282	366	23
1963-64	82	254	336	24

APPENDIX V

Production and Exports of Virginia Tobacco

(Quantity in thousand tonnes)

Year	Production	Exports	Export Percentage of Production	Remarks
1956-57	63	38	60	
1957-58	48	35	73	
1958-59	62	40	65	
1959-60	71	32	45	
1960-61	70	34	49	
1961-62	77	33	43	
1962-63	84	53	63	
1963-64	82	51	62	

APPENDIX VI

Production and Export of Cigar and Cheroot Tobacco

(Qty. in metric tons)

Year	Production of Cigar tobacco	Production of Cheroot tobacco	Total Production of Cigar & Cheroot tobacco	Export of Cigar and Cheroot tobacco	Percentage
1956-57	4000	19000	23000	1	Neg.
1957-58	3500	12500	16000	12	Neg.
1958-59	2000	17000	19000	146	1%
1959-60	2000	18000	20000	19	1%
1960-61	2000	19000	21000	19	1%
1961-62	1000	21000	22000	21	1%

Neg.=Negligible.

Average=2416.

सत्यमेव जयते

CHAPTER VI

SPICES OTHER THAN CARDAMOMS

1. Spices are generally used, apart from flavouring and spicing of different types of food preparations, in meat and fish pickling, fruit and vegetable canning and bakery and confectionery industries. Some like celery seed, coriander seed and cumin seed are also used in medicinal preparations.

2. India is a natural home of many spices and has been earning valuable foreign exchange through the exports of spices since ancient times. The spices entering India's export trade are (besides cardamom) pepper, chillies, celery, coriander and cumin seeds, curry paste and powder, fennel and fenugreek seeds, ginger, tejpat, turmeric (bark and roots) and minor spices, viz., badian seed, cassia, aniseed, cinnamon, cloves, mace, nutmegs, saffron and pulverised garlic.

EXPORT TRENDS

3. **Quality and Value**—Statistics showing the annual quantum and value of the principal spices exported from India from 1958-59 to 1963-64 are given in Appendix I. During 1963-64, we exported 55.1 thousand metric tons of spices valued at Rs. 13.16 crores. The most important spice from the export point of view is black pepper which accounted for about 34 per cent of the quantum and 45 per cent of the value of the total exports of spices in 1963-64. We also exported 3 metric tons of white pepper in 1962-63 and 170 kg. in 1963-64. The next in importance are chillies and ginger which accounted for about 22 per cent and 9 per cent of the quantum and for about 21 per cent and 11 per cent of the value respectively. Turmeric and celery seed shared about 6 per cent and 4 per cent of the quantum of exports respectively. The order of importance of the different spices from the point of view of exports has remained practically the same during the last six years.

4. On an average, a metric ton of spices yielded Rs. 2,387 of foreign exchange during 1963-64. The unit values vary greatly in respect of different spices. The highest values are realised from the exports of cumin seed, namely, Rs. 3,689 per tonne. On the other hand, coriander seed fetches only Rs. 882 and fennel seed Rs. 1,142. Ginger and chillies are yielding Rs. 2,904 and Rs. 2,317 per metric ton in foreign exchange. Next to cumin seed is pepper which yielded Rs. 3,112 per metric ton of exports.

5. The quantum of our exports of spices received a severe setback in 1962-63 after an upward trend during the preceding three years. During 1963-64, the position improved and the exports went up from 51.8 thousand tonnes to 55.1 thousand tonnes. The quantum rose markedly in the case of chillies. This is attributable to a large extent to the introduction of quality control measures. The quantum witnessed sharp declines in the cases of coriander and cumin seeds. It also fell appreciably in the case of ginger due to a shift in the consumer preference to the non-fibrous ginger.

6. **Destination**—Statistics showing the average annual quantum and value (absolute and unit) of the exports of the principal spices, viz., black pepper, chillies, curry paste and powder and ginger during the triennium ending 1962-63 are given in Appendix II. U.S.A., the largest purchaser of our black pepper, absorbed about 32 per cent of our exports during the triennium. U.S.S.R., coming next, accounted for about 18 per cent. Italy and Canada absorbed about 8 per cent and 5 per cent respectively. Between 1960-61 and 1962-63, the exports to Canada rose by about 145 per cent and those to U.S.A. by about 73 per cent. The exports to U.S.S.R. have declined by 40 per cent. The unit values varied between Rs. 2,526 in the case of Singapore to Rs. 4,569 in the case of East Pakistan. The unit value exceeded Rs. 4,000 per tonne in the case of East Pakistan, West Pakistan, Rumania, Yugoslavia, Czechoslovakia, Italy, East Germany, West Germany, Iran and U.S.S.R. On the other hand, in the case of U.S.A., the largest purchaser, it came to Rs. 3,638 only which is less than the average of Rs. 3,877. As a result, the contribution to foreign exchange earnings by U.S.S.R. is slightly higher and that of U.S.A. slightly lower, viz. 19 per cent and 30 per cent, than their shares of the quantum.

7. Chillies are almost entirely exported to Ceylon. During the triennium under review Ceylon accounted for more than 98 per cent of the quantum as well as the value of our exports of chillies.

8. The most important buyers of curry paste and powder are U.K. and British Guiana, whose intakes accounted for about 34 per cent and 25 per cent respectively of the quantum of our exports. Australia's purchases accounted for about 7 per cent of our offtake. In no other country did the share exceed 3.5 per cent. The intakes of all these three countries went up during the years 1960-61 to 1962-63. On an average, we realised Rs. 2,687 per tonne from the export of curry paste and powder. The countrywise variation ranged widely from Rs. 1,571- in the case of Bahrein Island to Rs. 4,296 in the case of Kenya. The unit value in the case of U.K., the largest purchaser, is about the average, namely, Rs. 2,796 but only Rs. 2,302 in the case of British Guiana. Thus, there is room for augmenting foreign exchange earnings from the exports of black pepper and curry paste and powder by developing trade with countries from where we realise higher returns per metric ton of our exports.

9. Ginger is exported to a large number of countries. The largest purchaser, Aden, accounts for about 31 per cent of the quantum. The other important buyers, Saudi Arabia, U.K., Sudan, U.S.A., account for about 34 per cent. The intake of Aden has declined from 2,247 tonnes in 1960-61 to 1,787 tonnes in 1962-63. The unit values vary within a narrow range of Rs. 1,568 per tonne in respect of Aden to Rs. 1,848 in the case of New Zealand except in the case of Mozambique for which, the unit value comes to Rs. 2,193.

10. **Minor Spices**—The minor spices appearing in India's export trade are badian seed, cassia, aniseed, cinnamon, cloves, mace, nutmegs, saffron and garlic (pulverised). The following table shows the exports of these spices from India during the past few years:—

TABLE 1

Export of Minor Spices from India

Quantity: Metric tons
Value: Rs. in lakhs

Minor spices	1960-61		1961-62		1962-63		1963-64	
	Q	V	Q	V	Q	V	Q	V
1. Badian seed . .	..	0·01	3	0·08	2	0·08	..	..
2. Cassia . .	79	1·21	26	0·39	48	0·61	15	0·23
3. Aniseed . .	21	0·28	19	0·26	72	0·95	643	8·46
4. Cinnamon . .	4	0·07	9	0·16	2	0·06	..	0·04
5. Cloves . .	..	..	..	..	..	0·01	..	..
6. Mace . .	..	..	7	0·22	2	0·05	3	0·13
7. Nutmegs . .	..	..	..	..	15	0·23	..	..
8. Saffron . .	..	0·04	..	..	..	0·01	..	0·61
9. Garlic (pulverised)	..	..	4	0·02	2	0·02	150	1·81
Total .	104	1·61	68	1·13	143	2·02	811	11·28

There was a marked rise in the quantum of exports of aniseed in 1963-64 due to the removal of the blockade on the movement through land routes to Afghanistan. There was a marked rise in the quantum of exports of pulverised garlic also. The cultivation of these spices in India is not done on a commercial scale and no reliable statistics regarding area, production, marketing costs and margins, etc. of these are available. Very little organised research work (excepting some scattered experiments here and there) appears to have been carried out on these spices. Efforts should be made to develop the cultivation of these spices with a view to making available increased quantities for export.

EXPORT EXPANSION

11. **Production**—Figures showing percentage of exports to production during 1958-59 to 1963-64 in respect of black pepper, chillies, turmeric and ginger are given in Appendix III. These figures show that exports constitute a very insignificant proportion of production, namely, 1 per cent to 3 per cent and 2 per cent to 7 per cent in the cases of chillies and turmeric respectively. In the case of black pepper and ginger, exports do account for substantial proportions, viz., 25 per cent to 47 per cent and 46 per cent to 81 per cent respectively.

12. India is one of the largest producers of chillies, ginger and some other spices in the world. The other important countries are Spain, Nigeria and Thailand for chillies and China, Japan, Jamaica and West Germany for ginger. The production of ginger is consumed within the country itself in most of the States except Kerala.

13. Figures of annual production for the other spices are not available. Efforts should be made to collect them regularly. Estimates, available for some of them, are given below:—

Spices	Production ('000 tonnes)
1. Coriander Seed	33
2. Cumin Seed	20
3. Fennel Seed	15–20
4. Fenugreek Seed	8–12
5. Tejpat	2–3

Some spice or the other is grown in every State. But the most important States growing several of these spices are Kerala, Maharashtra, Madras, Rajasthan, Madhya Pradesh, Andhra Pradesh and Orissa. Ninety-five per cent of our pepper is produced in Kerala.

14. **Yields**—The current estimated yields of the principal spices in India are given below:—

Spices	Yields (Kilograms per acre)
1. Pepper	103
2. Chillies	253
3. Ginger	388
4. Turmeric	1,000

सत्यमेव जयते

Efforts should be made to raise the yield per acre of different spices through better agronomic practices. Celery is liable to certain fungal diseases and to attack by a number of common garden insects. Ginger is susceptible to attacks of insects during storage, particularly during monsoon months. Efforts should be made to provide adequate pesticidal facilities for both these crops.

15. **Quality Improvement**—Compulsory quality control and pre-shipment inspection have been in force for black pepper and chillies with effect from 1st January 1963. Some complaints about the quality of chillies have been received even after this control was imposed. However, it has been pointed out that most of these complaints were in respect of non-specified grades. Though the rules specifically provide that packing under these grades could be allowed only against firm orders, in practice the requirement of firm order was not observed. It has since been decided to eliminate this grade. The requisite amendments to Chillies Grading and Marketing rules are being issued. However, there is also need to tighten up the control. Quality control and pre-shipment inspection should also be enforced for celery, coriander and cumin seeds, curry paste and powder, fennel seed and fenugreek seed.

16. There is need to encourage the production of fibreless ginger in India. Researches conducted with a view to ascertaining the morphological and yield characters of various varieties of fibreless ginger at the Agricultural Research Station, Wynad (Kerala) some time back have revealed that China and Rio-de-janero varieties of ginger are the most suitable in respect of quality and yield. The Indian Central Spices and Cashewnut Committee proposes to undertake pilot projects to test the performance of these two varieties in the States of Kerala, Himachal Pradesh and Assam during 1964-65. Depending on the results of these projects, an area of 5,000 acres is expected to be covered with these varieties during the Fourth Five Year Plan period in the States of Kerala, Himachal Pradesh, West Bengal and Assam. This needs to be pursued. If need be, we should import seed ginger from Jamaica for supplying to growers in selected areas in the country. There is also need to undertake scientific peeling and drying of ginger.

17. **Processing**—There is need for developing processing facilities for most of the spices in order to convert them into powder and make other preparations. Export of pepper and chillies should be encouraged in the form of powder. Possibilities of exporting pepper in the form of peprin should be explored. Efforts should be made to develop new products like oleoresin from pepper. It is reported that M/s. Techno-chemical Industries Ltd., Calicut, have exported some oleoresin of pepper, ginger, chillies, turmeric etc. to Japan, Australia, West Germany and U.S.A. They have reported that they have found it difficult to procure the requisite particulars of oleoresin likely to be in demand in the overseas markets. These particulars should be procured through our missions in those countries. It is reported that proper machines for the manufacture of essential oils of pepper, ginger, chillies etc. are not available indigenously. Efforts should be made to procure them so that we are able to develop the manufacture and exports of these products. The Central Food Technological Research Institute, Mysore, may be asked to undertake research for evolving new products from spices and for processing chillies in forms like capsicin acceptable to foreign buyers. Efforts should be made to export cumin, coriander, fennel and fenugreek seeds in powder form in polythene bags and to manufacture oil from these seeds and from tejpat for export to industrially advanced countries where it can find a ready market for use in food industries and for pharmaceutical purposes.

SPECIAL PROBLEMS

18. Certain problems to be tackled for the expansion of exports are special to individual spices. These have been dealt with separately for the important spices in the following paragraphs.

19. **Black Pepper**—India's chief competitors in the export trade in pepper are Indonesia, Sarawak, Ceylon, Madagascar, Brazil, Cambodia and Malaysia. Instability of prices of pepper is a serious handicap faced by the export trade in pepper. For instance, black pepper touched the all-time record price of about Rs. 13,000 per mertic ton in the year 1951 following the scarcity of the commodity arising out of widespread destruction of pepper areas in South East Asia during World War II. The commodity became highly valuable in the market and the crop received considerable attention at the hands of the growers. But this position was short-lived and within a few years the position of the growers became miserable and they did not care even to harvest the crop because the price did not meet

the cost of cultivation in some areas. The price of black pepper at the end of November, 1963, was about Rs. 3,000 per metric ton. The conditions of instability in regard to the pepper prices are continuing. Therefore, it is imperative for India to evolve an alternative method for the smooth and stable export trade in black pepper. The problem is to find out an assured export outlet for about 21,000 metric tons of black pepper per year. It is understood that the leading exporters of black pepper are generally agreeable to constituting a "Pepper Exporters' Corporation" to avoid unhealthy competition among themselves and to put forth a collective effort against competition from the rival producing countries. This point needs serious consideration. Besides, on account of the overwhelming continental preference for white pepper, India should plan to produce white pepper as a long-term measure in order to ensure additional resiliency in competition with Sarawak and Indonesia which produce both black and white pepper. The Pepper Research Station at Talipramba is reported to have evolved a cheap method for the preparation of white pepper at a cost of about Re. 1 per 10 Kg. The Indian Central Spices and Cashewnut Committee may be asked to set up a pilot plant for the manufacture of white pepper. A suggestion has been made that one of the methods of preparing white pepper is by polishing black pepper. But it is difficult to get polishing machines. Efforts should be made to get them from abroad and foreign exchange required for the purpose should be released.

20. **Chillies**—One of the difficulties in the export of chillies has been the high ocean freight on 'Volume' basis. It is reported that the Central Food Technological Research Institute, Mysore have evolved a method for packaging chillies in a compressed form, reducing the volume to a quarter of its size. Some work in this connection has also been done by one of the offices of the Directorate of Marketing and Inspection at Guntur by redrying of sun-dried chillies for fixation of the required percentage of moisture and introducing compressed packing of chillies with the help of 'Proctor and Schiwartz' redrying plant commonly used for the redrying of tobacco in Guntur. This would mean saving in ocean freight. Efforts should be made to give adequate publicity to these enterprises so that the exporters derive full advantage from these facilities.

21. **Curry Paste and Powder**—The Spices Trade Delegation, sponsored by the Spices Export Promotion Council, which visited West Asia, Continent and U.K. during October-November, 1962, has made a number of suggestions which have a bearing on our export trade in curry paste and powder. The Delegation has pointed out that the need to help exporters of spice compounds and curry powder with up-to date machinery not only for milling spices but also for attractively packaging them in various kinds of foils, bottles and tins was very clearly brought out during visits to factories particularly in Tehran, Humburg, Stockholm, Ystad (Sweden) and Dramman (Norway). The Delegation also saw pre-crushing and milling and sieving machines in the various factories and sieveless fine grinding mills called 'contraplex wide chamber mills' with rotatable study disks capable of milling spices to the required fineness and without the risk of any metallic contamination. The spice-milling industry in India, on the other hand, depends upon the beater type disintegrators and cast iron plate grinding mills which yield powder containing iron dust and filings. The Delegation has, therefore, observed that exporters of spices and curry powders should be helped with requisite foreign exchange to import the right type of machinery and plants.

22. The Delegation has also pointed out that the present consumer packagings in vogue in India compare very poorly with the packets, tins or bottles put on the market by the factories in the West. It has, therefore, suggested that exporters should be given facilities to import packing materials, such as aluminium foils, tin taggers and bottles of quality to pack their products for export. For this purpose, the exporters may be granted 10 per cent import entitlement on the F.O.B. value of their exports.

23. The major difficulty in respect of countries where curry powder is not popular is that the people there do not know the meaning of the word 'curry' and this acts as a deterrent to the export of curry powder. Intensive propaganda and publicity are required to popularise curry powder in these countries.

24. **Ginger**—India's traditional exports are in the form of dried, bleached and unbleached ginger. Efforts should be made to explore the possibilities of exporting ginger in other forms.

The following suggestions deserve consideration:—

(a) Production of ginger powder or ground ginger which can be obtained from all sizes of rhisanes of un-bleached dried ginger and can find a profitable market in the industrially advanced countries like Western Countries and U.S.A., should be developed.

(b) Production of oil and oleoresin from ginger should be developed for export to industrially advanced countries where it can find a ready market for use in food industries.

(c) Pickling of ginger alone or with other pickling materials should be undertaken. Ginger pickles can find a ready market in countries like U.S.A., U.K., as well as in under-developed countries like Africa.

(d) Another form of processing could be the sugar preserve of ginger. Ginger may be preserved in sugar syrup in different packings, i.e., different proportions of syrup to ginger according to the tastes of consumers in different countries. Ginger under this process is cooked several times at intervals of a week or 10 days to enable the ginger to absorb the syrup properly. The syrup could be further dried up by cooking, to prepare candied or crystallised ginger. These forms of ginger are in good demand in industrially advanced countries of Europe as well as Oceania and America. But, for the preparation of these types of syrup preserves, non-fibrous ginger is required. As already suggested, the production of non-fibrous ginger requires to be developed.

(e) Possibilities of exporting fresh ginger, which is at present consumed mostly within the country, should be explored. As ginger in fresh form is highly perishable, export trade can be developed if it is shipped under refrigeration.

25. **Turmeric**—As already stated, the main use of turmeric now-a-days is as a spice and food preservative—its industrial importance as a dye having dwindled both at home and abroad since the advent of cheaper synthetic dyes. A good percentage of India's production of turmeric is being consumed within the country. There have been sudden fluctuations in the internal prices of turmeric. For instance, the price of turmeric at Cuddapah dropped abruptly to about Rs. 35 per quintal during 1957 from

about Rs. 77 during 1956. The price in the beginning of November, 1963, was quoted at about Rs. 170 per quintal. Efforts should be made to take suitable measures to check sudden fluctuations in internal prices so that the importer abroad could be assured of its supplies at a steady price.

26. Bulk of the exports to U.S.A. and continental countries is in the form of unpolished fingers while exports to Middle East countries are in the form of bulbs, both polished and unpolished. Export in the form of powder is only in small quantities though, of late, export in powder form is becoming popular. It is reported that the machinery used in this country for powdering turmeric is such that a small percentage of metallic contamination is almost unavoidable and because of the stringent Food Laws of the importing countries like U.K. many consignments of turmeric powder from India are rejected by the importers and, many a time, the exporters in our country have to bear heavy reconditioning charges and suffer losses. Such metallic contamination of the powder could be eliminated by using imported grinding units fitted with magnetic separators. The possibilities of manufacturing such units in the country may also be explored. If necessary, imports of such machines should be allowed.

27. The bulbs and fingers of turmeric after harvest are freed from adhering dirt and fibrous roots and subjected to a process of curing and polishing. A new and simple method replacing the conventional use of cow-dung and chemichrome (lead chromate) has been developed by the C.F.T.R.I., Mysore. Efforts should be made to popularise this method.

EXPORT TARGETS

28. **Black Pepper**—The average exports of pepper during the triennium ending 1963-64 work out to 21,000 metric tons. A target of 23,000 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 28,000 metric tons, providing for an increase of 1,000 metric tons per annum.

29. **Chillies**—The average exports of chillies during the triennium ending 1963-64 work out to about 9,000 metric tons. A target of 11,000 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Five Year Plan could be 16,000 metric tons, providing for an increase of 1,000 metric tons per annum.

30. **Celery Seed**—In the absence of information regarding production it is somewhat difficult to suggest any export targets for celery seed. However, on the basis of the average level of exports during the last three years, the export target of 1,800 metric tons and 2,200 metric tons by the end of the Third and the Fourth Plan period would appear to be reasonable.

31. **Coriander Seed**—The average exports of coriander seed during the triennium ending 1963-64 work out to about 4,000 metric tons. A target of 5,500 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 8,000 metric tons, providing for an increase of 500 metric tons per annum.

32. **Cumin Seed**—Efforts may be made to export 500 metric tons of cumin seed every year till the end of the Third Five Year Plan. For the Fourth Plan, a target of 750 metric tons, providing for an increase of 50 metric tons per annum, seems to be reasonable.

33. **Curry Paste and Powder**—The average exports of curry paste and powder during the triennium ending 1963-64 work out to about 1,600 metric tons. A target of 2,250 metric tons for export by the end of the

Third Five Year Plan seems to be reasonable. The target for the Fourth Plan period could be 3,500 metric tons providing for an increase of 250 metric tons per annum.

34. **Fennel Seed**—The average exports of fennel seed during the triennium ending 1963-64 work out to about 1,700 metric tons. A target of 2,000 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 2,500 metric tons, providing for an increase of 100 metric tons per annum.

35. **Fenugreek Seed**—The average exports of fenugreek seed during the triennium ending 1963-64 work out to about 1,600 metric tons. The target for the Fourth Plan could be 2,100 metric tons, providing for an increase of 100 metric tons per annum.

36. **Ginger**—The average exports of ginger during the triennium ending 1963-64 work out to about 6,200 metric tons. A target of 8,000 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 10,500 metric tons, providing for an increase of 500 metric tons per annum.

37. **Tejpat**—The average exports of tejpat during the triennium ending 1963-64 work out to about 450 metric tons. A target of 500 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 600 metric tons, providing for an increase of 20 metric tons per annum.

38. **Turmeric**—The average exports of turmeric (bark and roots) during the triennium ending 1963-64 work out to about 3,200 metric tons. A target of 3,500 metric tons for export by the end of the Third Five Year Plan seems to be reasonable. The target for the Fourth Plan could be 5,000 metric tons, providing for an increase of 300 metric tons per annum.

39. **Minor Spices**—The cultivation of these spices in India is not done on a commercial scale and reliable statistics regarding production, availability for export etc. are not available. It is, therefore, not possible to suggest export targets for these spices.

CONCLUSIONS AND RECOMMENDATIONS

1. There is room for augmenting foreign exchange returns from the exports of black pepper and curry paste and powder by developing trade with countries from where we realise higher returns per metric ton of our exports. (Para. 8).

2. Efforts should be made to develop the cultivation of minor spices with a view to making available increased quantities for export. (Para. 10).

3. Figures of production of several important export spices are not being collected regularly. Efforts should be made to collect them. (Para. 13).

4. Efforts should be made to raise the yields of different spices through better agronomic practices. (Para. 14).

5. Adequate pesticidal facilities should be provided for celery seed and ginger. (Para. 14).

6. Compulsory quality control and pre-shipment inspection in respect of chillies have been in force since 1st January 1963. Some complaints about the quality of chillies have been received even after this control was imposed. Most of these were in respect of non-specified grades. Requisite changes in the Chillies Grading and Marking Rules are being made. The control measures should also be tightened up. (Para. 15).

7. Compulsory quality control and pre-shipment inspection should be enforced on celery, coriander and cumin seeds, curry paste and powder, fennel and fenugreek seeds. (Para. 15).

8. There is need to encourage the production of fibreless ginger in India. If necessary, we should import ginger seed from Jamaica for supplying to growers in selected areas. There is also need to undertake scientific peeling and drying of ginger. (Para. 16).

9. There is need for developing processing facilities for most of the spices in order to convert them into powder and to make other preparations. New products like oleoresin from pepper should be developed. Particulars of oleoresin likely to be in demand in overseas countries may be procured. Efforts should be made to procure proper machines for the manufacture of essential oils of pepper, ginger, chillies etc. The Central Food Technological Research Institute, Mysore, should undertake research with a view to evolving new products from spices and for processing chillies in forms like capsicin acceptable to foreign buyers. Efforts should be made to export cumin, coriander, fennel and fenugreek seeds in powder form in polythene bags and to manufacture oil from these seeds, and from tejpat for export to industrially advanced countries. (Para. 17).

10. The leading exporters of black pepper are reported to be generally agreeable to constituting a "Pepper Exporters' Corporation" to avoid unhealthy competition among themselves and to put forth a collective effort against competition from the rival producing countries. This point needs to be given serious consideration. (Para. 19).

11. The Indian Central Spices and Cashewnut Committee may be asked to set up a pilot plant for the manufacture of white pepper and to popularise the manufacture of white pepper to meet the needs of the countries who prefer white pepper. A suggestion has been made that one of the methods of preparing white pepper is by polishing black pepper. Efforts should be made to get the polishing machines from abroad. (Para 19).

12. Efforts should be made to give adequate publicity to the method of packing chillies in a compressed form evolved by the Central Food Technological Research Institute, Mysore, and to the method of re-drying and compressed packaging of chillies evolved by the Directorate of Marketing and Inspection. (Para 20).

13. Exporters of spice and curry powders should be helped with requisite foreign exchange to import the right type of machinery and plants for grinding etc. (Para 21).

14. Exporters should be given facilities to import packing materials. For this purpose, they may be granted 10 per cent import entitlement on the F.O.B. value of their exports. (Para 22).

15. Intensive propaganda and publicity should be undertaken to popularise curry powder and paste in countries which import these from us. Para 23).

16. India's traditional exports of ginger are in the dried, bleached and unbleached forms. Efforts should be made to explore the possibilities of exporting ginger in other forms, e.g., powdered, pickled, fresh. (Para 24).

17. Efforts should be made to develop the manufacture of ginger powder, oil and resin of ginger, ginger pickles, ginger syrup, preserved ginger etc. with a view to introducing these items in the overseas markets. Possibility of exporting fresh ginger should be explored. (Para 24).

18. Suitable measures should be taken to check sudden fluctuations in the internal prices of turmeric so that the importer could be assured of its supplies at a steady price. (Para 25).

19. The possibility of manufacturing suitable units fitted with magnetic separators for grinding turmeric should be investigated. If necessary, liberal imports of such machines should be allowed. (Para 26).

20. A new and simple method for removing dirt and fibrous roots from turmeric replacing the conventional use of cow-dung and chemichrome (lead chromate) has been developed by the C.F.T.R.I., Mysore. Efforts should be made to popularise this method. (Para 27).

21. The following targets for the export of various spices are suggested: —

TABLE 2

Export Targets of Spices

(Metric tons)

Spices	Third Plan	Fourth Plan	Para No.
1. Black Pepper	23,000	28,000	28
2. Chillies	11,000	16,000	29
3. Celery seed	1,800	2,200	30
4. Coriander seed	5,500	8,000	31
5. Cumin seed	500	750	32
6. Curry paste & powder	2,250	3,500	33
7. Fennel seed	2,000	2,500	34
8. Fenugreek seed	..	2,100	35
9. Ginger	8,000	10,500	36
10. Tejpat	500	600	37
11. Turmeric	3,500	5,000	38

सत्यमेव जयते

APPENDIX I

Export of Spices other than Cardamoms

Quantity — Metric tons
Value — Rs. in lakhs

Items	1958-59		1959-60		1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Pepper . .	11,674	247·07	20,680	818·30	17,203	849·73	21,691	810·60	20,888	657·81	18,940	589·40
Chillies . .	3,419	48·81	1,972	44·36	8,364	175·83	11,499	215·65	4,876	94·57	12,086	280·03
Celery seed .	1,324	20·31	1,395	18·80	1,398	20·79	1,776	36·14	1,507	34·19	2,339	41·66
Coriander seed .	1,853	12·75	499	6·47	1,859	20·62	8,393	73·18	2,470	17·75	833	7·35
Cumin seed .	335	9·62	1,816	41·93	1,021	20·11	787	16·15	302	8·63	190	7·01
Curry Paste & Powder . .	1,089	27·58	1,358	37·34	1,319	36·27	1,380	37·44	1,794	47·01	1,749	47·75
Fennel . .	1,267	17·97	1,661	16·40	1,389	15·16	1,764	17·67	1,632	16·62	1,593	18·19
Ginger . .	4,416	40·42	3,899	63·34	5,722	89·62	7,600	109·01	6,087	120·24	4,873	141·51
Turmeric . .	7,233	14·80	2,761	28·25	2,310	25·84	3,460	42·43	2,968	45·62	3,151	53·35
Others . .	2,386	16·87	7,471	68·55	6,873	68·02	7,170	52·77	9,304	123·03	9,365	129·55
Total .	35,001	486·20	43,512	1,143·74	47,458	1,321·99	65,520	1,411·04	51,828	1,165·47	55,119	1,315·80

APPENDIX II

Average Quantum and Value of Exports, Percentage Share and Value per tonne of certain Spices during the Triennium ending 1962-63.

Countries	Average Quantity (Metric tons)	% to the total	Average value (Rs. in lakhs)	% to the total	V.P.T. (Rs.)
Black Pepper					
U.S.S.R.	3,520	17·69	146·84	19·03	4,171
Poland	520	2·61	20·23	2·62	3,894
Germany East	698	3·51	28·02	3·63	4,012
Germany West	294	1·48	12·19	1·58	4,152
France	247	1·24	9·63	1·25	3,900
Italy	1,649	8·29	69·91	9·06	4,239
Hungry	417	2·10	16·21	2·10	3,888
Czechoslovakia	745	3·74	32·21	4·18	4,325
Yugoslavia	658	3·31	27·78	3·60	4,217
Bulgaria	172	0·86	6·55	0·85	3,810
Rumania	591	2·97	25·12	3·26	4,251
Aden	150	0·75	4·62	0·60	3,075
Pakistan West	266	1·34	11·50	1·49	4,323
Pakistan East	166	0·83	7·57	0·98	4,569
Singapore	488	2·45	12·32	1·60	2,526
Iran	213	1·07	9·25	1·20	4,351
U.A.R.	548	2·75	21·32	2·76	3,890
Canada	1,004	5·05	35·26	4·57	3,510
U.S.A.	6,389	32·11	232·42	30·13	3,658
Others	1,162	5·85	42·52	5·51	3,661
Total	19,897	100·00	771·47	100·00	3,877
Chillies					
Ceylon	8,089	98·10	159·56	98·48	1,973
Others	157	1·90	2·46	1·52	1,558
Total	8,246	100·00	162·02	100·00	1,965
Curry Paste and Powder					
U.K.	511	34·13	14·27	35·46	2,796
Kenya	36	2·40	1·55	3·85	4,296
British Guinea	367	24·52	8·45	21·00	2,302
Australia	98	6·55	3·17	7·88	3,238
Fiji Island	51	3·41	1·05	2·61	1,957
Trinidad	47	3·14	0·97	2·41	2,057
Singapore	13	0·87	0·51	1·27	4,162
Bahrein Island	21	1·40	0·33	0·82	1,571
Germany West	18	1·20	0·40	0·99	2,222
Hongkong	15	1·00	0·59	1·47	3,923
Iraq	16	1·07	0·65	1·62	4,062
Kuwait	43	2·87	0·81	2·01	1,906
Others	261	17·44	7·49	18·61	2,871
Total	1,497	100·00	40·24	100·00	2,687

APPENDIX II—contd.

Countries	Average quantity (Metric tons)	% to the total	Average value (Rs. in lakhs)	% to the total	V.P.T. (Rs.)
Ginger					
U.K.	478	7·39	7·77	7·31	1.625
Germany West	172	2·66	2·89	2·72	1,680
Aden	2,013	31·11	31·56	29·69	1,568
Ceylon	99	1·53	1·80	1·69	1,818
Singapore	279	14·31	4·42	4·16	1.584
Saudi Arabia	649	10·03	11·98	11·27	1,846
Iran	187	2·89	3·06	2·88	1,636
Afghanistan	50	0·77	0·87	0·82	1,740
Kenya	127	1·96	2·10	1·98	1,653
Sudan	434	6·71	7·30	6·87	1,682
Morocco	181	2·80	2·89	2·72	1,597
Somali Rep.	131	2·02	2·21	2·08	1,687
U.S.A.	668	10·32	10·73	10·09	1.606
Australia	132	2·04	2·27	2·14	1.720
Newzealand	66	1·02	1·22	1·15	1,848
Canada	60	0·93	0·97	0·91	1,617
Japan	74	1·14	1·19	1·12	1,608
Netherlands	58	0·90	0·93	0·87	1,603
Mozambique	20	0·31	0·45	0·42	2,193
Sweden	44	0·68	0·74	0·70	1,682
Others	548	8·48	8·94	8·41	1,631
Total	6.470	100·00	106·29	100·00	1.643

APPENDIX III

Exports and Production of Certain Spices

Year	Production 000 metric tons	Export 000 metric tons	% of Export to Production
I. Pepper			
1958-59	26	12	46
1959-60	26	21	81
1960-61	28	17	61
1961-62	28	22	79
1962-63	26	21	81
1963-64	24	19	79
II. Chillies			
1958-59	333	3	1
1959-60	342	2	1
1960-61	372	8	2
1961-62	376	11	3
1962-63	389	5	1
1963-64	413	12	3
III. Turmeric			
1958-59	104	7	7
1959-60	104	3	3
1960-61	104	2	2
1961-62	107	3	3
1962-63	109	3	3
1963-64	N.A.	3	..
IV. Ginger			
1958-59	14	4	29
1959-60	15	4	27
1960-61	17	6	35
1961-62	17	8	47
1962-63	17	6	35
1963-64	20	5	25

N.A.—Not available.

CHAPTER VII

RAW COTTON

Cultivation of cotton is spread throughout the world. As many as sixty countries grow this crop. But there are some fairly well-concentrated areas of production. 85 per cent of the world production of this fibre is attributable to eight countries—U.S.A., U.S.S.R., China, India, Mexico, Egypt, Pakistan and Brazil. Cotton is one of the most important cash crops of India and the cotton textile industry is her largest industry. In acreage, India occupies the first place in the world but in production she ranks fourth coming after U.S.A., China and U.S.S.R. During the quinquennium ending 1961, India's share in the annual world production of cotton varied between 7 per cent and 11 per cent.

EXPORTS

2. While we have been depending on imports for long and extra-long staple cottons, we have also been exporting raw cotton, particularly, of the short staple variety, which is in excess of domestic requirements. Assam Comillas, Zoda and Yellow picking are being allowed to be exported freely while Bengal deshi cotton is allowed to be exported subject to quotas released from time to time.

3. Statistics showing the volume and value of raw cotton exports since 1951-52 are given in Appendix I. Both the volume and value of exports show wide fluctuations from year to year. Between 1951-52 and 1963-64, the volume has ranged between 1.3 lakh and 6.1 lakh bales. The volume has been rising in recent years except for a slight recession in 1963-64. On an average, we exported 3.15 lakh bales annually during the First and 2.97 lakh bales during the Second Five Year Plan period. The percentage of Bengal deshi (the main variety exported) to the total exports was 40 in the First, 50 in the Second Plan period, 75 in 1961-62, 79 in 1962-63 and 80 in 1963-64. The value has fluctuated between about Rs. 7 and Rs. 26 crores during this period. The unit value (value per bale) has also been fluctuating widely. Consequently, the impact of volume on foreign exchange earnings has been often neutralised. During 1961-62 and 1962-63, the rise in volume, being small, was more than off-set by the fall in the unit value and the total earnings actually dropped.

4. India's contribution to the world trade in cotton has ranged between 1 per cent and 3.5 per cent. Statistics showing the percentage share of the principal importing countries in the imports of our cotton during the years 1951-52 to 1963-64 are given in Appendix II. Japan has been the largest buyer, accounting for 42 per cent to 87 per cent, of the world imports of Indian cotton. China and Hong Kong accounted for 12 per cent to 16 per cent during the years 1954-55 to 1958-59. In certain years, U.K.'s imports have also been substantial. During 1953-54 to 1955-56, she absorbed 11 per cent to 14 per cent of our annual off-take of cotton.

5. We have been exporting 6 per cent to 10 per cent of our annual production leaving out exceptional years, viz., 1953-54 and 1955-56 when the percentage was abnormal, viz., 3.4 and 15.3 respectively.

6. India is also an important producer of cotton yarn and textiles. The value of her exports of these goods has ranged between 7 per cent and 14 per cent of the world total since 1953-54. The value of these exports has been declining during the last three years.

7. India has to import certain quantities of long and extra-long staple cotton to meet the mill demand for such cottons. India's average annual imports of foreign cotton in the past have been of the order of 7 lakh bales.

EXPORT PROMOTION

8. **Production**—Statistics showing the production of raw cotton according to staple-length groups between 1950-51 and 1962-63 are given in Appendix III. The production of raw cotton has made significant advances since 1950-51. It stood at 53.90 lakh bales in 1960-61, i.e., 80 per cent higher than in 1950-51 when it was only 29.71 lakh bales. The average annual production rose from 3.7 lakh bales in the First to 4.6 lakh bales in the Second Plan period. During 1961-62, the production dropped to 45.00 lakh bales. In 1962-63 it recovered its 1960-61 level. The production of short staple cotton (the main variety exported) has been on the decline. The annual average came down from 8.3 lakh bales in the First Five Year Plan to 7.4 lakh bales in the Second Five Year Plan period. In 1961-62 it registered a significant improvement and rose to 8.17 lakh bales from 7.7 lakh bales or by about 6 per cent. The short-staple has accounted for 14 per cent to 32 per cent of the annual production of cotton since 1950-51. While plans have been drawn up for increasing the overall production of raw cotton as part of the various Five Year Plans, no separate plans have been drawn up for increasing the production of exportable varieties of cotton. Stress is at present laid on increasing the production of medium and long staple varieties with a view to meeting the requirements of the Indian cotton textile industry and progressively reducing our dependence on imports. As increased production of medium and long staple varieties facilitates the capacity of the mill industry to export cloth, the present policy is already indirectly export-oriented.

9. The target of production of raw cotton at the end of the Third Five Year Plan has been fixed at 70 lakh bales. This allows for 63 lakh bales (together with 3 lakh bales of imported cotton) required for producing 9,300 million yards of cloth for internal requirements at the rate of 17.5 yards per capita and for export at 850 million yards, 3 lakh bales for extra-factory consumption, including manufacture of surgical cotton, khadi etc. and 4 lakh bales for export. The production in 1963-64 was 55 lakh bales. We have, therefore, to step up our efforts so as to increase the production of cotton by about 30 per cent if we have to attain the targets of cloth production for export and internal consumption and to produce enough raw cotton for the manufacture of surgical cotton, khadi etc. and for export to the tune of 4 lakh bales per annum.

10. The techniques for increasing the production of cotton are well known. These include improved irrigational facilities, introduction of plant protection measures and supply of fertilisers. Unfortunately, these improved techniques have not made sufficient headway in all the cotton-growing areas. In 1961-62, irrigated cotton covered only 14 per cent of the total cotton acreage. The area covered by the plant protection measures formed hardly 2 per cent of the total acreage. We have, therefore, a long

way to go before the entire area under cotton would have the benefit of improved growing techniques.

11. Our yield per acre was 100 lbs. in 1961-62 compared to 584 lbs. in U.S.S.R., 438 lbs. in U.S.A., 359 lbs. in U.A.R., 375 lbs. in Sudan and 207 lbs. in Pakistan. We must concentrate on increasing the yield per acre to be able to meet our requirements of raw cotton.

12. **Demand**—It is well known that short staple cotton exported from India to Japan and other countries is usually used for the manufacure of mattresses and other finished products which are sold by these countries at good prices in the foreign markets. The Government of India should examine the possibilities of utilising in the country itself, as far as possible, the cotton at present exported for the manufacture of finished goods for export. This would fetch more foreign exchange and give employment to people in the country. The possibilities of securing collaboration with Japan or some other country in the manufacture of mattresses etc. should also be examined and explored. However, until any export-oriented schemes of utilisation of deshi cotton in the country itself came into force, it would be desirable to maintain the export of deshi cotton at least at the existing levels.

13. During recent years there has been a fall in our exports of cotton to the traditional markets, viz., U.K. and U.S.A. It would be worthwhile investigating the reasons for this. The Indian Embassies in these countries may be asked to ascertain the scope for increasing the import of the short staple cotton from India and to indicate the measures needed to step up exports.

14. Our Missions in Japan and Hong Kong (who are major buyers of short staple cotton) may also be asked to investigate whether there was scope for increasing export of deshi cotton to these countries. According to present indications, the scope is limited as during the last year (September, 1962—August, 1963) there was an unsold balance of 5,000 bales left from the quota of short staple cotton released for export. If these investigations indicate the possibility of these countries being able to absorb larger quantities of Indian deshi cotton, the Ministry of Food and Agriculture should take measures to increase the production of deshi cotton. From the export angle, we should mainly concentrate on four varieties, viz., Bengal Deshi, Oomras, Dholleras and Comillas. In this connection it may be mentioned that any imports of American cotton under PL 480 Agreement should not act as disincentive for increasing the production of cotton in the country.

15. A suggestion has been made that we should try to produce and use more staple fibre for internal consumption so that our dependence on imported cotton could be reduced. The growth of the rayon industry all over the world has been primarily to bridge the ever-widening gulf between internal demand and supply of cotton. It is felt that the growing requirements of cloth cannot be met by increasing the production of cotton alone and that other natural cellulose resources will have to be tapped for providing the essential needs of clothing. This points to the need for making available regenerated cellulose in the form of viscose, cellulose acetate and cuprammonium. The rayon industry needs also to be developed to reduce the expenditure on imports of cotton. In view of these facts, it is suggested that the staple fibre industry in India should be suitably developed so that more of these fibres could be used for the cloth industry and more cotton could be available for exports.

EXPORT TARGETS

16. As stated above, until any export oriented schemes for utilisation of deshi cotton in the country itself come into force, it would be desirable to maintain the exports of deshi cotton at least at the existing levels. If enquiries from our Missions in U.K., U.S.A., Japan etc. reveal that there is scope for stepping up exports to these countries, we should try to increase production of deshi cotton.

CONCLUSIONS AND RECOMMENDATIONS

1. Stress is at present laid on increasing the production of medium and long staple varieties of cotton with a view to meeting the requirements of the Indian cotton textile industry and progressively reducing our dependence on imports. As increased production of medium and long staple varieties facilitates the capacity of the mill industry to export cloth, the present policy is already indirectly export-oriented. (Para. 8).

2. In order to be able to cater to the increased demand for cotton textiles for export and internal consumption and to meet the requirements of cotton for the manufacture of surgical cotton, khadi etc. and for export, we should step up our efforts so as to increase the production of raw cotton by about 30 per cent. We should concentrate on increasing the yield per acre through improved techniques of production. (Paras. 9 & 11).

3. The Government of India should examine the possibilities of utilizing in the country itself, as far as possible, the cotton at present being exported for the manufacure of finished goods for export. The possibilities of securing collaboration with Japan or some other country in the manufacture of mattresses etc. should also be examined and explored. However, until any export oriented schemes of utilisation of deshi cotton in the country itself come into force, it would be desirable to maintain the export of deshi cotton at least at the existing levels. (Para. 12).

4. During recent years there has been a fall in the exports of cotton to our traditional markets, viz., U.K. and U.S.A. It would be worth-while investigating the reasons for this. The Indian Embassies in these countries may be requested to ascertain the scope for increasing the import of short staple cotton from India and to indicate measures needed to achieve this end. (Para. 13).

5. Our Missions in Japan and Hongkong (who are our major buyers of short staple cotton) may also be asked to investigate whether there was scope for increasing the exports of deshi cotton to these countries. If these investigations indicate the possibility of these countries being able to absorb larger quantities of Indian deshi cotton, the Ministry of Food and Agriculture should take measures to increase the production of deshi cotton. From the export angle, we should mainly concentrate on four varieties, viz., Bengal Deshi, Oomras, Dholleras and Comillas. Any imports of American cotton under PL 480 Agreement should not act as a disincentive for the production of cotton in the country. (Para. 14).

6. The staple fibre industry in India should be suitably developed so that more of these fibres could be used for the cloth industry and our dependence on imported cotton could be reduced. (Para. 15).

7. Until any export-oriented schemes for utilisation of deshi cotton in the country itself come into force, it would be desirable to maintain the exports of deshi cotton at least at the existing levels. The target of exports by the end of the Fourth Five Year Plan should be four lakh bales. (Paras. 9 & 16)

APPENDIX I

Exports of Raw Cotton from India

Year	Quantity (000 bales of 392 lbs. each)	Value (Rs. in crores)	Value per bale (Rs.)
1951-52	200	10·5	525
1952-53	309	13·5	437
1953-54	134	7·0	522
1954-55	319	16·8	526
1955-56	612	25·6	418
1956-57	299	15·0	502
1957-58	292	11·6	397
1958-59	401	13·3	332
1959-60	201	7·9	393
1960-61	290	13·7	472
1961-62	320	12·4	388
1962-63	334	12·4	371
1963-64	313	12·1	386

APPENDIX II

Production of Cotton in India

(000 bales of 392 lbs. each)

Year	Short staple (11/16″ and below)	Medium staple (above 11/16″ & below 7/8″)	Long staple (7/8″ to 1″)	Superior long staple (1″ & above)	Total
1950-51	839	1,448	637	47	2,791
First Plan					
1951-52	992	1,223	863	55	3,133
1952-53	831	1,395	839	66	3,131
1953-54	872	1,651	1,339	103	3,965
1954-55	790	1,908	1,412	117	4,227
1955-56	662	1,762	1,272	305	4,001
1951-56 Average	829	1,588	1,145	129	3,691
Second Plan					
1956-57	707	2,150	1,549	329	4,735
1957-58	799	1,969	1,633	338	4,739
1958-59	830	2,088	1,386	382	4,686
1959-60	589	1,231	1,341	427	3,678
1960-61	768	2,180	2,068	374	5,390
1956-61 Average	739	1,923	1,614	370	4,646
1961-62	817	1,769	1,926*	..†	4,512
1962-63	854	2,220	2,238*	..†	5,312

सत्यमेव जयते

* Includes figures for superior long staple (1″ and above).

† Included under figures for long staple (7/8″ to 1″).

APPENDIX III

Exports of Raw Cotton from India

Year (Sept. to August)	Exports 000 bales of 392 lbs. each	Percentage share of important importers of Indian cotton					
		U.K.	U.S.A.	Japan	China & Hongkong	Others	Total
1951-52	200	5	7	..	88	..	100
1952-53	309	6	14	46	..	34	100
1953-54	134	13	9	55	..	23	100
1954-55	319	14	6	42	13	25	100
1955-56	612	11	1	55	16	17	100
1956-57	299	7	9	57	12	15	100
1957-58	292	7	3	67	12	11	100
1958-59	401	2	2	74	13	9	100
1959-60	201	1	3	87	3	6	100
1960-61	290	1	3	79	6	11	100
1961-62	320	2	5	79	4	10	100
1962-63	334	2	4	83	2	9	100
1963-64	313	2	5	80	3	10	100

Source—Monthly statistics of the Foreign Trade of India.

सत्यमेव जयते

CHAPTER VIII

RAW WOOL

1. Statistics showing the annual volume and value (total and unit) of our exports on raw wool during the years, 1951-52 to 1963-64, are given in Appendix I. The volume of our exports rose almost every year till 1959-60, the peak year of the period, by when it had risen to 19.7 thousand metric tons from 8.3 thousand tonnes in 1951-52, the first year of the Plan or by about 150 per cent. During this period, it fell only twice; in 1953-54 by almost 45 per cent and in 1958-59 nominally. The average annual exports rose from 12.8 thousand tonnes during the First Plan to 16.2 thousand tonnes during the Second Plan period, or by about 26 per cent. Since 1959-60 the trend has been downward and, though there was some recovery in 1961-62, the volume in 1962-63 and 1963-64 was less than 11.0 thousand metric tons, the lowest since 1953-54.

2. The unit value (value per metric ton) has fluctuated between Rs. 4884 in 1952-53 and Rs. 6736 in 1956-57. It has been rising on the whole, the annual average being Rs. 5845 for the First Plan period and Rs. 6085 for the Second. It showed a marked recovery in 1963-64 after having been depressed during the two preceding years.

3. As a result of the above tendencies in volume and unit value, the total earnings of foreign exchange from the export of wool have varied between about Rs. 6 crores and Rs. 8.7 crores per year during the last 3 years as against Rs. 9 to Rs. 11.5 crores during the triennium ending 1959-60. The reason for the fall in our exports has been greater offtake by the Indian wool textile industry, particularly in view of its commitments for Defence.

4. India has also been importing large quantities of raw wool, including wool tops. The figures of imports for the last six years are given below:--

TABLE I

Imports of Raw Wool

Year	Quantity (Million Kg.)	Value (Rs. in lakhs)
1958-59	10·0	1,036·48
1959-60	10·2	966·50
1960-61	12·1	1,041·20
1961-62	17·5	1,218·86
1962-63	18·0	1,215·27
1963-64	21·7	1,572·08

Considering the needs of the indigenous wool textile industry, it is unlikely we could increase our exports of Indian wool to a substantial extent unless there is a marked increase in the production of wool.

5. Figures showing the percentage share of the importing countries in the off-take of our wool are given in Appendix II. A great change has occurred in the relative importance of the export markets for our raw wool. U.K.'s share had declined from 62.4 per cent in 1951-52 to 28.5 per cent in 1962-63, and U.S.A.'s from 37.9 per cent in 1955-56 to 5.1 per cent in 1962-63.

There was an improvement in 1963-64 when their shares went up to 44.2 per cent and 17.9 per cent. On the other hand, U.S.S.R., which entered the Indian market only in 1954-55, absorbed 23.4 per cent of our exports in 1958-59 and nearly half of our exports in 1962-63, but there was a sharp decline in 1963-64. This is not due to a rise in the absolute quantum of our exports but to a withdrawal of demand from other countries. The decline in the average annual imports in the Second Plan period over the First Plan period was of the order of 16 per cent by U.K. and 2 per cent by U.S.A.

6. Comparative average annual prices of raw wool offered by U.K., U.S.A. and U.S.S.R. for various qualities of wool during the years, 1958 to 1962, are given in Appendix III. These show that, by and large, U.S.S.R. offered higher prices. The average unit values realised from our exports to U.S.S.R. also compare favourably with the average and with those realised from U.K. For exports during the Second Plan period, the average annual unit value came to Rs. 6,439 in respect of wool sent to U.S.S.R., as against our average foreign exchange earnings per metric ton of Rs. 6,085. The unit values were higher for exports to Australia and U.S.A., viz. Rs. 6,567 and Rs. 6,801. Our increasing exports to Russia should cause no regret but we should also try to retain our traditional markets. There is, therefore, need to increase the production of wool so that we can feed the new markets and retain the traditional ones, apart from meeting the increasing indigenous demand.

7. Besides raw wool, India exports woollen piecegoods, blankets, shawls, lohies and hosiery goods. The value of these exports during the last 3 years has been as follows:—

Years	Lakh Rs.
1960-61	82
1961-62	46
1962-63	85

सत्यमेव जयते

The exports of woollen goods thus fell sharply in 1961-62 but the situation was retrieved the next year. During 1963-64, the trend is towards higher exports, the value of exports till August (5 months) being 91 lakhs Rupees. U.K., U.S.A. and U.S.S.R. account for 70 per cent of our total exports.

EXPORT EXPANSION

8. **Supply**—The following table shows the production of wool for a few selected years since the First Five Year Plan:

Years	(Million lbs.)
1951	60·59 (or 27·5 million Kg.)
1956	68·28 (or 31·0 million Kg.)
1961	72·00 (or 32·6 million Kg.)

(The production figures of wool are issued at an interval of 5 years).

It would be observed that the production has been steadily rising though it cannot be described as spectacular. This trend is likely to be maintained. Production of good quality wool is mainly confined to the North-Western region of the country, though a major portion of the sheep population is concentrated in the Southern region. Rajasthan is the most important wool-producing State, accounting for over 42 per cent of the country's production. The composite State of Bombay (Now Gujarat and Maharashtra) comes next with 15.9 per cent of the total production. The other important wool-producing States are Andhra Pradesh, U.P., Mysore, Madras and Punjab. From the point of quality of wool produced, the country can be divided into four regions, viz., (1) Temperate Himalayan, (2) Dry North-Western, (3) Southern and (4) Eastern. The Dry North-Western region is the home of some of the famous sheep breeds like the Bikaneri, producing the best qualities of carpet wool. The Southern and the Eastern regions generally produce hairy and coarse wool and the Temperate Himalayan region produces mostly apparel wool.

9. Planned efforts to improve the breed of sheep and to increase the production of wool commenced in 1936 when the I.C.A.R., in collaboration with the various States, initiated certain schemes for upgrading the indigenous stock by crossing the foreign breeds with the Bikaner breed. On the basis of the data obtained from these trials, the I.C.A.R. has formulated a coordinated programme for the improvement of sheep and development of wool in all the four regions. In addition, some of the wool producing States have also formulated separate plans for the development of wool. The programme for the Third Five Year Plan is as follows:—

(1) Establishment of 158 sheep and wool extension Centres with a view to bringing the total number of such centres to 463 by the end of the Third Five Year Plan. The scope of activities of each centre will be enlarged from 10,000 to 15,000 sheep. Out of 158, 113 centres have been set up and the remaining 45 will be set up in the course of the next 2 years.

(2) To increase the number of stud farms, it is proposed to extend 17 sheep farms in ten States. Such extension has already taken place in the States of Andhra Pradesh, Assam, Gujarat, Maharashtra, U.P. and Madras.

(3) The establishment of a Central Sheep Breeding and Wool Research Institute to carry out work on the fundamentals of sheep and wool production and to coordinate research carried out in different parts of the country. The scope of work at the Institute will also include studines in wool technology and wool processing. The Institute started functioning in January, 1962.

(4) Establishment of 15 new sheep breeding farms in eight important wool producing States (3 farms have already been set up).

(5) Organisation of sheep shearing, classing and grading centres for wool on a large scale. These centres will undertake marketing of wool also. The work will be mainly concentrated in Rajasthan where a number of small-scale shearing and grading centres at the village level, secondary centres for the collection of wool and terminal centres at important markets with warehousing and marketing facilities will be established. The target is to handle 20 million lbs. of wool per annum. This scheme will help the primary producer to get a better return for his produce and will,

thus, give him the much-needed incentive for greater production and classification. Five experts were invited from Australia to assist in the organisation of these centres. A permanent wool-grading centre is being established.

With the organisation of sheep shearing, classing and grading centres for wool on a large scale, it would be possible to salvage large quantities of superior quality wool and this will improve our export earnings to some extent.

10. While the schemes for producing increased quantities of wool are all right as far as they go, it is for consideration whether we could not encourage setting up of a few sheep farms in compact blocks in suitable areas in Rajasthan. The sheep farms could be set up either by Government or by private parties. In the latter case it might be desirable to exempt the sheep farms from the operation of the ceiling laws. The plan schemes for producing increased quantities of wool should be implemented as expeditiously as possible in order to meet the growing indigenous demand and to feed foreign markets, both traditional and new. The question of incentives to exporters could be considered only after there was sufficient production and exportable surplus of wool.

11. **Pashmina Wool**—Pashmina wool is used in the manufacture of quality shawls and scarves which have a good export market. Previously, this wool was imported from Tibet through Ladakh and certain passes in the Western Zone of the Himalayas. Large quantities were also imported via Sikkim and were re-exported via Calcutta. The previous sources of supply of Pashmina wool have now dried up and it is necessary to plan for the production of this wool in the country itself. The annual production of hair from goats fo Ladakh is estimated at about 1.3 lakh Kg. of which about 41,000 kg. would be fine under-coat useful for the manufacture of fabrics.

12. The following table shows the exports of pashmina from India during the past few years:—

TABLE 2

Exports of Pashmina

Year	Quantity (000 Kg.)	Value (Rs. in lakhs)
1959	214	31·61
1960	100	14·64
1961	38	2·02
1962	20	1·79
1963	28	1·77

13. Breeding of Pashmina-bearing goats is possible by crossing the Ladakh type with suitable breeds from U.S.S.R. and U.S.A. Pashmina goats can also be imported from Afghanistan. A scheme has been sanctioned for the establishment of a Pashmina goat farm near Leh and this has been initiated recently. It has not been possible so far to obtain Pashmina goats from Russia. A breeding research station is being set up at Kulu with assistance from U.N. Special Projects Fund. The work will include trials with goats, yielding Pashmina and Mohair, as well as types similar to the fur

goats, such as Predonskaya from U.S.S.R. Efforts should be made to obtain sufficient goats from Afghanisatan and U.S.A. and to pursue with vigour the scheme to breed Pashmina goats. A farm, with a herd strength of 75 goats, has recently been established at Kuril for breeding pashmina goats. It is proposed to increase the number of goats in this farm to 2,000.

14. A number of extension centres have been established in Chang Thang, Leh and Kargil areas. It is planned to distribute Pashmina bucks produced at the State farms to the herd owners in the neighbouring areas. There is a proposal to start two more farms—one at Matho and the other at Kargil—and a number of extension centres with a view to assisting the herd owners in selecting better breeding stock and rendering veterinary aid to the animals. A number of other measures will have to be taken for augmenting production of pashmina wool. The more important of these are given below:—

(1) A systematic survey should be carried out to obtain data on the qualities and quantities of pashmina produced, followed by standardization of qualities which should be bred in the herds.

(2) Proper method of shearing and grading of pashmina leading to evaluation of herd performance should be introduced. This is necessary for advising the owners in the selection of outstanding stud animals.

(3) A high altitude research station should be established for raising pashmina goats in large numbers and for carrying out studies in the selection of new strains, yielding better quality pashmina.

(4) Training of field staff, particularly recruited from Ladakh, is essential before setting up of an organisation to improve the status of this industry.

(5) Schemes for introducing pashmina goats in Lahul, Spiti and Chini valleys should be taken up to increase production. It is possible to locate 15 to 20 thousand goats in these areas.

(6) Machines for dehairing should be introduced for removing fine fibres from the coarse outer coat. Without the mechanisation of this process, there is no likelihood of developing the indigenous industry.

15. If these basic aspects are developed systematically, the present population of 1,80,000 pashmina goats in Ladakh would serve as a potential for manufacturing material valued at nearly Rupees three crores.

16. **Possibilities of Further Processing**—The carpet industry is the most important and oldest woollen industry. Carpets constitute an important item of export. U.K. is the most important buyer besides Canada, U.S.A. and Australia. Considerable demand exists abroad for the medium-priced mill-made utility carpets. In the absence of carpet weaving plants in India, it is not possible to compete with the mill-made carpets produced abroad. It is understood the finished products in many cases are not upto the standard, as inferior qualities of dyes and admixtures of ungraded wools are being used. The possibility of manufacturing carpets with the help of carpet weaving plants deserves to be investigated. The switch-over should be gradual so that the cottage carpet industry is not affected. At present almost the entire production of tannery wool of South India is exported abroad for making felts. If the felt-making industry could be set up in India and, instead of wool, the felts were exported, our foreign exchange earnings could be higher.

17. **Warehousing and Storage**—Adequate facilities for warehousing of wool, which is a costly commodity needing credit facilities at all stages of marketing, are lacking both in the important assembling markets as well as in Bombay city, the principal export centres. For the financing of wool marketing and for making available cheap credit facilities, particularly to the producers, provision of warehouses in the wool assembling markets is essential. The Acts under which warehouses are being set up both at the Central and State levels do not include 'wool' in the schedule of commodities to be accepted by the warehouses. It is necessary to amend the relevant Acts so as to enable the Central and State Warehousing Corporations to set up warehouses in the wool producing areas and in the terminal markets of Bombay.

18. **Establishment of auction markets for wool in India**—The advanced countries have long realised that an appreciable reduction in the cost of marketing can be effected by (i) the establishment of markets near the area of production and (ii) direct sales to the consumer. These improvements will at once make for a higher return to the producer and lower costs to the manufacturer for the raw material. The Indian exporters, by selling their wool through the Liverpool auctions, have to bear the attendant risk and to wait for a long time for their money. If, on the other hand, an auction market is established at Bombay, direct shipments to the consuming countries would be possible, which would mean economy in transport, handling and other charges. Bombay has direct communication with most of the importing countries in Europe, America and Asia. Hence, re-shipment freight, handling charges, commission etc. in Liverpool will be eliminated. As Bombay handles the major portion of the wool exported from the country, additional transport costs will also be avoided. The establishment of an auction market for wool at Bombay, therefore, merits serious consideration.

19. **Regulation of Markets**—With a view to eliminating malpractices, rationalising market charges and ensuring a fair deal to the producers, the important markets in the wool-producing States should be brought within the purview of the Agricultural Produce Markets Acts. In these markets necessary facilities may be provided for the assessment of quality and a system of sale on the basis of recognised grades should be introduced so as to enable the producers to realise prices commensurate with quality.

20. **Producers' Cooperatives**—In India, the shepherds, after shearing, play no part in the preparation and processing of raw wool for market. The entire processing of wool is carried out by the traders. For increasing the return of the producers, cooperative processing and marketing need to be organised. Concerted and sustained efforts have, therefore, to be made in the wool producing areas, chiefly in Rajasthan and Gujarat, for promoting cooperative processing and marketing of wool, including grading.

21. **Export Targets**—The annual production of wool in the country is estimated to be about 32.6 thousand tonnes. Our exports during the year 1963-64 were 10.9 thousand tonnes, worth Rs. 6.5 crores. In view of the growing indgienous needs, marked increase in exports would not be possible. But we should aim at increasing our exports by one thousand tonnes every year.

CONCLUSIONS AND RECOMMENDATIONS

1. The relative importance of U.K. and U.S.A. as buyers of Indian wool declined and that of U.S.S.R. went up considerably during 1961-62 and 1962-63. During 1963-64, this tendency was reversed. Exports to Russia should cause no regret but we should also try to retain our traditional markets. There is, therefore, need to increase production of wool so that we can feed both the traditional and new markets apart from meeting increasing indigenous demand. (Para. 6)

2. It is for consideration whether we could not encourage setting up of a few sheep farms in compact blocks in suitable areas in Rajasthan. The sheep farms could be set up either by Government or private parties. In the latter case, it might be desirable to exempt the sheep farms from the operation of the ceiling laws. (Para 10).

3. It is necessary to plan for the production of Pashmina wool in the country. Breeding of Pashmina yielding goats is possible by crossing Ladakh type with breeds from U.S.S.R., U.S.A. and Afghanistan. Efforts should be made to obtain the necessary number of goats from Afghanistan, U.S.S.R. and U.S.A. The scheme to breed pashmina goats should be vigorously pursued. (Paras. 13 & 14)

4. The possibility of manufacturing carpets with the help of carpet weaving plants deserves to be investigated. The switch-over should be gradual so that the cottage carpet industry is not affected. (Para. 16)

5. At present almost the entire production of tannery wool of South India is exported abroad for making felt. If the felt making industry could be set up in India and, instead of the wool, the felts were exported, our foreign exchange earnings could be higher. (Para. 16)

6. The Acts under which warehouses have been set up both at Central and State levels do not include 'wool' in the schedule of commodities to be accepted by warehouses. Steps may, therefore, be taken to amend the relevant Acts so as to enable the Central and State Warehousing Corporations to set up warehouses in the wool producing areas and in the terminal markets of Bombay. (Para. 17)

7. An auction market for wool should be set up at Bombay. (Para. 18)

8. With a view to eliminating malpractices, rationalising market charges and ensuring a fair deal to the producers, the important markets in the wool producing States should be brought under the purview of Agricultural Produce Markets Acts. (Para. 19)

9. For increasing the return of the producers, cooperative processing and marketing need to be organised. Concerted and sustained efforts have, therefore, to be made in the wool producing areas, chiefly in Rajasthan and Saurashtra, for promoting cooperative processing and marketing of wool, including grading. (Para. 20)

10. In view of the growing indigenous needs, any steep increase in exports would not be possible but we should aim at increasing our exports by one thousand metric tons every year over the previous year. (Para. 21)

APPENDIX I

Volume and Value (Total and unit) of Exports of Raw Wool

Years	Quantity (Metric tons)	Value (Rs. in lakhs)	Value per tonne (Rs.)
1951-52	8,298	489·70	5,901
1952-53	17,221	841·02	4,884
1953-54	9,387	587·06	6,254
1954-55	13,973	861·05	6,162
1955-56	15,306	972·93	6,357
Average	12,837	750·36	5,845
1956-57	14,996	1,010·10	6,736
1957-58	16,894	1,121·88	6,640
1958-59	16,468	903·80	5,488
1959-60	19,729	1,152·18	5,840
1960-61	12,733	730·31	5,736
Average	16,164	983·65	6,085
1961-62	15,367	867·82	5,647
1962-63	10,662	607·41	5,697
1963-64	10,890	652·56	5,992

सत्यमेव जयते

APPENDIX II

Percentage Share of the Importing Countries in the Offtake of Wool Exported from India

(Percentages on the basis of quantity)

Countries	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
U.K.	62·4	47·8	72·1	56·0	53·0	42·7	42·7	35·9	30·4	37·1	30·3	28·5	44·2
U.S.S.R.	..	..	..	0·1	..	15·2	15·0	23·4	18·2	21·2	44·3	49·0	23·6
West Germany	0·3	1·9	1·4	1·8	2·5	3·7	3·1	3·6	6·4	5·3	4·2	7·2	5·0
Netherlands	1·8	2·8	0·6	0·4	0·8	1·9	2·3	1·6	1·9	2·7	1·2	1·0	2·2
Belgium	1·0	1·7	1·1	0·7	2·0	4·9	4·0	3·7	0·5	2·3	3·3	1·9	33·2
France	1·6	0·8	1·0	1·2	2·2	3·6	5·1	3·8	4·9	5·3	3·8	3·5	3·3
U.S.A.	22·6	32·0	17·4	37·5	37·9	25·2	24·8	24·8	26·9	18·5	9·6	5·1	17·9
Australia	0·2	0·6	2·6	1·5	1·4	2·3	2·2	2·7	3·5	5·4	2·2	2·3	..
Others	10·1	12·4	3·8	0·8	0·2	0·5	0·8	0·5	1·3	2·2	1·1	1·5	0·6
Total	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)	(100·0)

APPENDIX III

Average Annual Prices of Raw-wool Offered by U.K., U.S.A. and U.S.S.R. for Various Grades and Types of Indian Raw Wool during the Years 1958 *to* 1962

(F.O.B. in pence per lb.)

Grades or Types of Wool	1958			1959			1960			1961			1962		
	U.K.	U.S.A.	U.S.S.R.	U.K.	U.S.A.	U.S.S.R.	U.K.	U.S.A.	U.S.S.R.	U.K.	U.S.A.	U.S.S.R.	U.K.	U.S.A.	U.S.S.R.
Bikaner White	55	..	61	63	..	64	67	69	65	63	68	65	57	..	65
Bikaner Pale Yellow	45	..	50	..	..	53	65	58*	54	55	56	54	47	..	56
Beawar White	48	..	56	..	..	61	65	65	61	60	60	60	..	..	62
Beawar Tinged White		..	52	..	..	..	56	55	..	51	58	..	..	..	56
Beawar Pale Yellow	45	..	..	..	..	51	51	54	52	..	..	..	..	..	..
Joria White	54	..	55	..	..	63	58	65	63	55	61	61	56	..	62
Joria Tinged White	49	..	..	51	..	..	47	57	..	48	55	..	48	..	..
Joria Pale Yellow	..	..	..	..	..	56	..	..	55	..	40	53	..	..	53
Punjab White	..	..	60	..	..	62	..	..	62	..	..	60	..	..	62
Punjab Pale Yellow	..	..	..	..	..	..	..	..	..	..	..	52	..	..	53
Fazilka White	..	..	..	62	..	..	66	65	..	62	61	..	..	..	..
Fazilka Pale Yellow	..	..	..	..	..	..	54	54	..	62	62	..	..	..	..
Fazilka Tinged White	..	..	..	..	..	..	59	58	..	55	53	..	..		..

N.B.—This statement has been prepared on the basis of monthly average prices of different types and grades of wool.

CHAPTER IX

FISH AND FISH PRODUCTS

EXPORT TRENDS

1. **Quantity and Value**—The main fishery products exported from India are (i) fish—fresh, chilled or frozen, (ii) fish salted, dried or smoked, (iii) Crustacea and Molluscs and (iv) fish products and fish preparations. Statistics showing the quantity and value of exports of the above varieties of fish and fish products from India during 1958-59 to 1963-64 are given in Appendix I. During 1962-63 we exported 10.8 thousand metric tons of fish and fish products and earned about Rs. 4 crores of foreign exchange from these exports. The tempo of exports went up during 1963-64 and we were able to export about 18,000 metric tons of these products and earn Rs. 5.7 crores of foreign exchange.

2. The bulk of the exports consists of fish (as distinguished from fish products) accounting for about 86 per cent of the quantum of exports of fish and fish products in 1962-63 and 94 per cent in 1963-64. Crustacea and Molluscs, the principal export varieties of fish, accounted for about 61 per cent and 43 per cent of the quantum of fish in 1962-63 and 1963-64 respectively. The relative importance of Crustacea and Molluscs vis-a-vis dried, salted and smoked fish has undergone a radical change during the last six years. In 1958-59 the latter constituted 78 per cent and the former only 17 per cent. As a result of the decline in the Exports of dried and salted fish, its relative importance has been reduced considerably and in 1963-64 it accounted for nearly 57 per cent of the exports whereas Crustacea and Molluscs accounted for nearly 43 per cent. Fish products are exported almost entirely in air-tight containers. Only 8 out of 1,145 tonnes of these products exported in 1963-64 were not contained in air-tight containers. We have made a great advance in this respect since 1958-59 when only about 20 per cent used to be exported in air-tight containers.

3. The unit values of the different varieties of fish vary greatly. In 1963-64 the highest value was yielded by Crustacea and Molluscs, *viz.*, Rs. 4,300 per tonne, as compared with Rs. 3,200 by fresh fish and Rs. 1,888 by salted, dried and smoked varieties. Fish products naturally realise higher values, the average being Rs. 5,947 as against Rs. 2,917 for fish.

4. The quantum of our exports of fish and fish products has been declining continuously since 1958-59 when we exported 29,000 tonnes of these products. As the unit value has gone up from Rs. 1,872 in 1958-59 to Rs. 3,105 in 1963-64, though the quantum shrank by 33 per cent, the foreign exchange earning has remained practically the same. The most precipitous fall has taken place in the case of salted and dried varieties whose quantum dwindled from nearly 22,000 tonnes in 1958-59 to about 10,000 tonnes in 1963-64. The general trend in world consumption has been towards a decrease in the demand for dried and cured fish and an increase in the demand for frozen and canned fish. The intake of Ceylon has shrunk markedly. Ceylon has set up a co-operative wholesale establishment for the import of all commodities including fishery products and has controlled the retail rates for dried fish at about half the usual rate. For example, the prices of important varieties of dried fish have fallen

from about Rs. 140, Rs. 150 and Rs. 85 respectively to Rs. 90, 70, and Rs. 40 respectively. This has proved unattractive to the Indian exporters. The quantum of Crustacea and Molluscs, the most important export varieties, has been fluctuating between 4.5 thousand and 7.3 thousand tonnes during the last six years with an alternating rises and falls. The exports of fresh fish have also dwindled from 1,448 tonnes to 35 tonnes. On the other hand, exports of fish products went up from 767 metric tons in 1960-61, to 1,216 metric tons in 1961-62 and further to 1,521 tonnes in 1962-63. In 1963-64 they dropped to 1,145 metric tons.

5. **Destinations**—Statistics showing the average annual quantum and value (absolete and unit) of the exports of different varieties of fish as well as the total fish and fish products from India during the triennium ending 1962-63 are given, countrywise, in Appendix II. Though we export fish to countries as far-flung as Italy, Sweden, etc. in Europe and to Australia and U.S.A., the bulk of the exports, taking the aggregate picture, go to Ceylon and Burma which accounted for 70 per cent of the quantum of our exports during the triennium ending 1962-63. Among the distant countries, it is only U.S.A. which purchased substantial quantities and accounted for about 16 per cent of the quantum of our exports during this period. The remaining 14 per cent are exported to numerous countries in Asia, Europe and North America. The unit value realised from the total exports varied greatly namely, from Rs. 359 in the case of Malaysia to Rs. 11,536 in the case of U.K. largely due to the differences in the varieties. As a result of variations in unit values, U.S.A., with 16 per cent of the share in the quantum, contributed 30 per cent of the value, whereas Ceylon whose share came to 53 per cent in quantum, contributed only 32 per cent, the unit value being Rs. 5,169 and Rs. 1,625 per tonne respectively. The contribution of Burma in the value is almost the same as her share in the quantum, namely, 17.5 per cent and 17.2 per cent respectively.

6. Fresh fish is naturally sent to nearby countries. Ceylon purchased about 84 per cent of our exports of fresh fish and Singapore about 6 per cent. Salted, dried or smoked fish is sent to a larger number of countries but an overwhelming proportion (about 90 per cent) goes to Ceylon. The other destinations worth mentioning are Singapore and Mauritius, accounting for about 2.6 per cent and 2.9 per cent of the quantum. The unit value realised by this variety of fish ranged from Rs. 1,678 for Ceylon to Rs. 13,570 in the case of U.K. Crustacea and Molluscs are exported principally to Burma, U.S.A. and Ceylon accounting for about 46 per cent, 32 per cent and 7 per cent of the quantum of their exports respectively. The unit value of this variety of fish ranged from Rs. 1,833 in the case of Mauritius to Rs. 6,364 in the case of Australia, followed by U.S.A. with Rs. 4,989. The high proportion of USA's contribution to our total foreign exchange earnings from fish and fish products is due to her large share in the export of Crustacea and Molluscs and to the high unit value realised for them from that country. Exports to Burma, the largest single buyer, yielded only Rs. 2,794 per tonne. The unit values are much higher in the case of Singapore, Hong-Kong and Australia, namely, Rs. 3,293, Rs. 3,433 and Rs. 6,364. The most important purchaser of fish products in air-tight containers is U.S.A. which absorbs 76 per cent of our total exports of this variety. Next came U.K. and Canada with about 7 per cent and 5 per cent respectively. The unit values realised from our exports to U.S.A., the largest purchaser, are much lower than those realised from many other countries, such as U.K., Netherlands and Canada. There

seems to be scope for augmenting foreign exchange returns in the case of Crustacea and Molluscs as well as fish products by developing trade with countries from where higher unit values are realised.

7. **Exports of Shrimps**—India started manufacturing frozen shrimp by about 1957. At present 16 shrimp freezing concerns are in existence in the country. Most of these are centred in and around Cochin where abundant supply of shrimps is available. The freezing capacity of all these factories is about 84 metric tons a day, with a storage capacity of about 1,877 metric tons. Statistics showing the quantity and value of exports of frozen and other shrimps from India to various countries during 1960-61 to 1963-64 are given in Appendix III. The exports of frozen and other shrimps came to 5,680 metric tons valued at Rs. 237.33 lakhs in 1962-63, as against 6,413 metric tons valued at Rs. 215.33 lakhs during 1961-62. During 1963-64, the tempo went up and we exported 7,340 tonnes. The most important customers are U.S.A. and Burma accounting for 48 per cent and 29 per cent of the quantum in 1962-63 and 51 per cent and 23 per cent in 1963-64.

8. Canning of shrimps is also of recent origin in India. At present there are 10 canning factories with a total production capacity of about 1,74,800 cans per day. These factories are also centred in and around Cochin. Almost the entire quantity of canned shrimps is exported. Statistics showing the quantity and value of exports of canned shrimps, fishmaws and sharkfins from India to various countries during 1962-63 and 1963-64 are given in Appendix IV. The exports of canned shrimp during 1963-64 came to 1,106 metric tons, valued at Rs. 66 lakhs. The important countries importing Indian canned shrimp are U.S.A., U.K., Canada, Hong-Kong, Burma and Italy.

9. **Exports of Other Kinds of Fish**—Fishmaws, which are dried air-bladders of perches, are utilised in the preparation of Isinglass for use as a clarifying agent in distilleries. The types of fish from which air-bladder can be obtained are available mainly in Gujarat, Maharashtra, Mysore, Kerala and Southern districts of Madras. They are, however, being produced on a commercial scale only on the Gujarat and Maharashtra coasts. During 1963-64 we exported fishmaws to the tune of 125 metric tons, valued at Rs. 18.55 lakhs. The important countries importing Indian fishmaws are Singapore, U.K. and Hong Kong.

10. The exports of sharkfins during 1962-63 were to the tune of 201 metric tons, valued at Rs. 11.13 lakhs. The important countries importing Indian sharkfins are Singapore, Hong Kong and Malaya. During 1963-64 we exported 293 tonnes. Sharkfins are in great demand in Hong Kong and Singapore where they are used in the preparation of a special type of soup. Considering the volume of shark landings, their exports could be easily doubled with concerted efforts to cut the fins and process them for export.

EXPORT EXPANSION

11. **Production**—It is the marine fisheries which contribute to our export earnings. Unfortunately, the production from marine fisheries, which was 8.79 lakh metric tons in 1960, has been falling continuously and came to 6.55 lakh tonnes in 1963. The target of marine fish production by the end of the Third Five Year Plan is 12 lakh metric tons. It cannot be said at this stage whether the target would be achieved. It is

now recognised that marine fish production in India will increase in proportion to the number of mechanised boats. The experimental stage in the designing and construction of small mechanised boats is almost over and boats acceptable to the fishermen have already been evolved and many of the maritime States have set up boat-building yards. About 1,800 boats were mechanised up to the end of the Second Five Year Plan. The target for the mechanisation of boats during the Third Five Year Plan has been fixed at 4,000 boats. Since mechanisation depends on imports of marine diesel engines, till such time as the indigenous production of diesel engines becomes sufficient to meet the growing demand, every facility should be provided for the import of these engines either through the release of free foreign exchange or through suitable arrangements with the rupee-payment countries or through aid programmes. The yearly target for the Third Five Year Plan is about 800 engines. Not more than 200 engines could be imported during 1961-62. During 1962-63, 429 engines were imported under the Yen Credit and another 50 engines from Yugoslavia under the rupee payment agreement. We placed orders for 390 engines from Yugoslavia in 1963-64. Most of these have been received. A few engines have been imported by the exporters also.

12. Indigenous production of engines commenced during 1963 and up to December, 1963, the local manufacturers had supplied about 80 engines of various horse-powers. Thus, about 1,200 engines had been supplied to the fishing industry as against 2,400 engines which should have been supplied according to the target fixed in the Third Plan. Orders have been placed for 500 engines—250 each from Yugoslavia and Denmark—in 1964-65.

13. Another important item needed for increasing marine fish production is synthetic fibre for making improved types of nets. As against the total annual demand of about 10 lakh pounds, the indigenous manufacturers can supply hardly 2.5 lakh pounds. It is essential that adequate foreign exchange should be made available every year for the import of nylon to ensure increased production of marine fish.

14. **Other Measures**—Laminated Bombay duck packed properly in attractive packing would fetch a better price. Efforts should be made to export it. Heads of Shinghala should be removed at the time of curing as they are not of much marketable value. Wet curing of Shinghala may also be tried for export to Singapore and Ceylon.

15. The development of fisheries in reservoirs has expanded considerably and effective fishing methods have been evolved for deep water fishing. We should now follow the pattern of development that has been evolved to set up ice factories near storage centres and to provide a fleet of fishing boats for the various reservoir projects.

16. **Japanese Delegation Report**—The essential requisites for fishery development are mechanisation of boats, development of harbours, improvement of refrigeration, provision of equipment, training of staff, research and surveys. In most of these matters, in the initial period, the requirements of foreign exchange are necessarily large. Where we have been content to follow traditional methods of small-scale fishing, we are suddenly transported into a field in which other countries have made far-reaching advances in their pursuit of progress. It is, therefore, inevitable that we should have an initial period of build-up of our resources through the aid of foreign equipment, foreign personnel and foreign institutions. With a view to securing Japanese collaboration in the field of fisheries, a

delegation led by Shri V. Shankar, I.C.S., visited Japan in May, 1964. As a result, collaboration has been secured for the following purposes from Japan: —

1. Expansion of Taiyo's collaboration with New India Fisheries for fishing and processing. Taiyo's are considering the grant of a loan of a million dollars to New India Fisheries.

2. Setting up of a factory for manufacturing marine engines in India.

3. The Government of Japan have agreed to send a technical mission to India consisting of six Japanese experts on—

   (a) fishing harbours;
   (b) off-shore and deep sea fishing;
   (c) fishery biology;
   (d) pearl oyster culture;
   (e) utilisation of weeds, and
   (f) fish marketing.

4. The Government of Japan have agreed to accept 20 trainees from India for training in the following subjects: —

   (a) different types of fishing techniques;
   (b) cultural techniques for marine fishing;
   (c) cultural techniques for oysters;
   (d) training in the use of electronic equipment;
   (e) training in utilisation of weeds;
   (f) advance training in fish processing;
   (g) pearl oyster culture; and
   (h) exploitation of corals and shells etc.

Necessary action is being taken in regard to each of these subjects. The Department of Food should follow up the recommendations speedily.

17. The Department of Food has decided to set up a Fisheries Corporation with American collaboration. Messrs Van Camps of U.S.A. have agreed to offer collaboration and the outlines of the Corporation have been sent to them for their final approval. This collaboration would be of a commercial character. It would not only be aimed at the exploitation of our marine fishery resources, but would also provide for marketing fish abroad, thus earning valuable foreign exchange for our country, which may run into multiples of what it is to-day. The Corporation would in particular exploit the shrimp resources of the deeper waters beyond the reach of the Indian fishermen.

18. **Survey and Investigation**—There is considerable scope for increasing the production of shrimp. The Tuna fisheries of Laccadive and Minicoy Islands are well known. Investigations by the vessels of the off-shore fishing station have provided further information about the Tuna resources of these regions. Exploratory fishing with a Japanese expert is now continuing. Further, the Andaman & Nicobar areas is one of the richest Tuna fishing grounds in the world. These marine resources must be exploited at the earliest possible date for the sake of our export trade. A resources survey should be undertaken in potential areas to assess the availability of raw materials for large-scale processing plants. Apart

from surveys which are being done by the Indo-Norwegian Project, the Indian Oceanographic surveys hold out promise of useful and valuable accretion to our knowledge.

19. There is a very good demand for Indian frog legs in U.S.A., and France. But stocks of frog legs are being depleted. Research on production and conservation of frogs is urgently called for. The larger frog legs sell better than the smaller ones because they look better and contain more meat. The practice of some Indian exporters to indicate on the wooden cases the number of frog legs to the Kilogram has been appreciated by the dealers. The frog legs should be of uniform size and the number of legs per Kg. should be indicated on the wooden cases. Extension services, which have to carry the results of research to the field, have not yet developed to the desirable extent. We should now form a panel of technical experts to guide the extension services both in the Centre and in the States.

20. It is necessary to have an agency to report the market trends for fish and fish products in the countries where fish is being exported. It is also necessary to attempt to collect samples of products popular in foreign markets. If the samples are sent to central laboratories, they may initiate research on their production in India.

21. **Storage**—Although during the Second Five Year Plan ice plants with a capacity of 171 tons were established, besides 21 cold storages with a capacity of 585 tons, many of the important landing and assembling centres have still not been covered. During the Third Five Year Plan, 72 ice and cold storages are proposed to be set up. Efforts should be made to achieve the target. The major difficulties encountered during the execution of the scheme are: non-availability of vital components for freezing industry* within India, restricted issue of import licences and lack of qualified technical personnel for handling the plants etc.

22. **Packing**—Indian shrimp is being exported under too many brand names, none of which has emerged with a prominent reputation in the United States market. Some have no brand names at all. The result is that all shrimps from India tend to be referred under the general title 'Indian Shrimp' irrespective of brands. This practice affects the exports of Indian shrimp inasmuch as the impression created by the arrival of defective shipments lowers the overall reputation of Indian shrimps. Efforts should be made to induce the traders to give suitable brand names to their products. Besides, packaging should be attractive, colourful and clean and the label should be expressive of the product.

23. In India, 50 per cent of the marine fish landings is converted into cured fish, viz., dried unsalted, dried salted and wet-cured products. The Government of the maritime States have established over 150 curing yards at important fish landing centres to demonstrate hygienic curing of fish. There are also thousands of private fish curing yards which produce dried fish for export. But the quality of dried fish is capable of further improvement. Further, dried fish is often packed in dirty gunny bags. Sometimes it is just tied up with jute twine and no attempt is made to protect it from dirt either in the Indian curing yards and godowns or in the ships. This dried fish mostly goes to the South East Asian Countries. The standards of living of the people in these countries are rising and it is essential for the Indian producers and exporters of dried fish to realise

that unless they produce and store fish under hygienic conditions and pack it in dust-proof containers, our exports of dried fish are likely to suffer.

24. **Processing**—There is a good demand for live lobsters in West Germany. Value of dead or injured lobsters, which we are exporting at present, is considerably low. It is reported that a process of conditioning lobsters by tranquilizing to stand the air-transport is under experimentation in the laboratory of the Maharashtra State Department of Fisheries. It is also reported that trial consignments sent to Switzerland have shown encouraging response. Efforts should be made to standardise the method of packing live lobsters with a view to increasing their exports.

25. Mackerels and Sardines together constitute about 20 per cent of the total marine fish landings in India. These are mainly caught between Cochin in Kerala and Ratnagiri in Maharashtra. The duration of the occurrence of these migratory fisheries is hardly about four months, i.e., from November to February. At present, three of the ten canning factories can these fish to a limited extent. Since the potentialities of utilising these types are great, it is desirable to establish ice and cold-storage factories at suitable places in order to preserve the fish when they are available in large quantities and to utilise them at a later period. At least 10 more canning factories can be set up in important assembling centres, between Cochin and Ratnagiri, to utilise the Mackerel and Sardine catches and the canned fish could be exported. The Southern coast of Kathiawar produces more than six thousand tons of Pomfret and a canning factory at either Porbandar or Veraval could can Pomfret for export. The possibilities of producing fish oil which could be used in the manufacture of paints and soaps should be explored.

26. **Quality Improvement**—Now that the Indian standards for some important export products have been finalised by the I.S.I., quality control should be introduced for the main varieties of export fish as early as possible. Efforts should be made to improve the quality of dried and frozen fish by mechanisation and popularisation of hygienic methods of handling. The quality of fish meal produced in the country is poor. It is essential to improve its quality, as we could then sell it to a number of countries—specially the East European countries.

27. **Export Incentives**—The Ministry of International Trade has drawn up a special Export Promotion Scheme for different varieties of fish and fish products, sharkfins and fishmaws, frog legs and lobster tails. The details of the scheme, which is being administered by the Marine Products' Export Promotion Council, Ernakulam, with effect from 1st January, 1963, are given in Appendix V. The tin plate subsidy scheme was in operation for about a year to enable the canned fish manufacturers to obtain empty cans at subsidised rates so that they could compete favourably in the world markets. This has been withdrawn from the 1st of April, 1963. This should be revived and continued till the end of the present Plan. A scheme for the draw-back of customs and excise duties has been introduced for tin-plates and shrimp cartons used in packing fish products for export. Through the mediation of the Government, shipping freight for frozen fish has recently been reduced by the Conference Lines from 85 dollars to 75 dollars per cubic meter. It is considered that it is still much higher than the rates available to exporters of other countries and efforts should be made to have it further reduced. In order to promote the exports of fishery

products, the Government of India has recently advised the State Governments that they may adopt a system of linking up the distribution of marine diesel engines with exports. It has been tentatively agreed that 25 per cent of the additional production achieved with the help of the imported engines would be utilised for processing fishery products exclusively for export.

28. It is significant that the present exports of frozen and canned fish are confined to Cochin (90 per cent), Bombay and Mangalore (5 per cent each). For taking up the export trade in other areas, it is necessary not only to increase production of fish by mechanised fishing but also to develop internal marketing facilities. On an average, a boat can land 50 tons a year of which the proportion of shrimp varies between 5 per cent and 10 per cent. The remainder consists of miscellaneous fish which does not have a good export market. Thus, Vizag has a glut of fish when 4 or 5 trawlers land the fish in a day. Unless adequate incentive is given to market the non-exportable fish in the country by providing refrigerated and subsidised transport to the interior, a subsidised rate of sale etc., export trade cannot develop at new points. The Department of Food have written to the Railway Board to construct 6 refrigerated vans at their cost and the railways have agreed to run them. State Governments have also agreed to make market arrangements for the supply of ice at reasonable costs.

29. The other alternative is to make the fish into meal but India's cost of production is nearly Rs. 1,200 per ton as against the world price of Rs. 600 per ton. In Peru, which produces large quantities of fish meal, the production is subsidised by the Government. If subsidy is given on the production of fish meal, it will not only earn foreign exchange but also make mechanised fishing immediately lucrative in new areas.

30. **Export Targets**—The value of annual exports of fish during the past six years has ranged between about Rs. 4 and 6 crores. The target of export by the end of the Third Five Year Plan, i.e., 1965-66, has been fixed at Rs. 10 crores. For the Fourth Five Year Plan, a target of Rs. 25 crores would appear to be reasonable. In order to achieve these targets, necessary facilities like boat-building yards, acquisition of fishing trawlers, plants to manufacture marine engines and nylon twines and shore establishments etc. have to be developed.

CONCLUSIONS AND RECOMMENDATIONS

1. Considering the volume of shark landings, the export of shark fins could be easily doubled with concerted efforts to cut the fins and process them for export. (Para. 10).

2. Indigenous manufacture of diesel engines should be encouraged till such time as the indigenous production becomes sufficient. Adequate foreign exchange should be made available for the import of engines from abroad. (Para. 11).

3. Adequate foreign exchange should be made available for the import of nylon to ensure increased production of marine fish. (Para. 13).

4. Efforts should be made to export Laminated Bombay duck packed properly in attractive packing. Wet curing of Shinghala may also be tried for export to Singapore and Ceylon. (Para. 14).

5. We should set up ice factories near storage centres and provide a fleet of fishing boats for the various reservoir projects. (Para 15).

6. With a view to securing the collaboration of Japan for the development of our fisheries, a delegation led by Shri V. Shankar, I.C.S. paid a visit to Japan in May, 1964. Collaboration has been secured in several directions. The Department of Food should follow up the recommendations speedily. (Para. 16).

7. The Fisheries Corporation should aim at development of marine fishery resources as well as marketing fish abroad. It should explore the shrimp resources of deep waters beyond the reach of the Indian fishermen. (Para. 17).

8. A resources survey should be undertaken in potential areas to assess the availability of raw materials for setting up large scale processing plants. Apart from surveys being done by the Indo-Norwegian project, the Indian Oceanographic Surveys should prove very valuable. (Para. 18).

9. Research on production and conservation of frogs is called for. (Para. 19).

10. We should form a panel of technical experts to guide the extension services. (Para. 19).

11. It is necessary to have an agency to report the market trends for fish and fish products in the countries where they are exported. It is also necessary to collect samples of fishery products popular in foreign countries, so that the Indian laboratories could be asked to produce similar products in India for export purposes. (Para. 20).

12. Efforts should be made to achieve the Third Plan target for ice and cold storages. (Para. 21).

13. Efforts should be made to induce the exporters of Indian shrimp to give suitable brand names to their products. Besides, packaging should be attractive. (Para. 22).

14. It is essential for the Indian producers to realise that, unless they produce and store dried fish under hygienic conditions and pack it in dust-proof containers, our exports of dried fish are likely to suffer. (Para. 23).

15. Effort should be made to standardise the method of packing live lobster with a view to increasing its exports. (Para. 24).

16. At least 10 more canning factories can be set up between Cochin and Ratnagiri to utilise the Mackerel and Sardine catches. The canned fish can be exported. (Para. 25).

17. The possibilities of producing fish oil should be explored. (Para. 25).

18. Quality control should be introduced for the main varieties of export fish. Efforts should be made to improve the quality of dried and frozen fish by mechanisation and popularisation of hygienic methods of handling. It is essential to improve the quality of fish meal. (Para. 26).

19. The tin-plate subsidy should be revived and continued at least till the end of the present Plan. (Para. 27).

20. Incentives should be provided to expand the export of processed fish from new areas by giving subsidies on marketing of fish in the internal market or in the manufacture of fish meal, as hardly 5 to 10 per cent of fish landings consist of exportable varieties. Unless the rest of the fish is marketed properly in the interior of the country, there would be no incentive to increase fish landings. (Paras. 28 and 29).

21. For the Fourth Five Year Plan, a target of Rs. 25 crores worth of fish and fish products for exports would appear to be reasonable. (Para. 30).

APPENDIX I

Export of Fish and Fish Products from India

Quantity in Metric tons
Value Rs. in lakhs

Commodity	1958-59		1959-60		1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
I. Fish fresh Chilled or Frozen .	1448	6·34	504	3·73	1094	7·61	244	2·50	339	1·91	35	1·12
II. Fish salted dried or smoked	21835	388·86	20698	408·80	13498	282·44	7811	121·10	3298	78·78	9879	186·48
III. Crustacea & Molluscs Fresh chilled Frozen .	4702	155·70	5392	154·98	4553	146·61	6424	216·31	5696	238·20	7340	315·67
IV. Fish Products in air tight containers .	245	20·12	335	17·61	387	23·23	714	49·49	1513	88·86	1137	67·63
V. Fish Products not in air tight containers .	844	2·20	190	1·15	380	1·97	502	1·86	8	0·38	8	0·46
Total .	29074	573·22	27119	586·27	19912	461·86	15695	391·26	10854	408·13	18399	571·36

APPENDIX II

Exports of Fish and Fish Products during the Triennium ending 1962-63

Quantity in metric tons
Value Rs. in lakhs

Fish Fresh, Chilled or Frozen

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	468	83·72	2·13	53·12	454
U.S.A.	9	1·61	0·39	9·73	4423
Singapore	32	5·73	0·59	14·71	1835
Kuwait	5	0·89	0·11	2·74	2267
Mauritius	..	..	..	..	..
U.K.	..	..	..	..	..
Burma	..	..	..	..	..
Hong Kong	..	..	..	..	..
Australia	..	..	..	..	..
Belgium	..	..	..	..	..
Canada	..	..	..	..	..
Italy	..	..	..	..	..
Sweden	..	..	..	..	..
Denmark	..	..	..	..	..
Netherlands	..	..	..	..	..
Malaya	..	..	..	..	..
Other Countries	45	8·05	0·79	19·70	1763
Total	559	100·00	4·01	100·00	717

Fish Salted Dried or Smoked

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	7377	89·94	123·81	77·01	1678
U.S. A.	..	..	..	..	..
Singapore	215	2·62	10·98	6·83	5105
Kuwait	..	..	..	..	..
Mauritius	241	2·94	4·54	2·82	1886
U.K.	89	1·09	12·12	7·54	13570
Burma	113	1·38	2·24	1·39	1979
Hong Kong	42	0·51	4·42	2·75	10433
Australia	..	..	..	..	..
Belgium	..	..	..	..	..
Canada	..	..	..	..	..
Italy	..	..	..	..	..
Swedan	..	..	..	..	..
Denmark	..	..	..	..	..
Netherlands	..	..	..	..	..
Malaya	..	..	..	..	..
Other Countries	125	1·52	2·66	1·66	2136
Total	8202	100·00	160·77	100·00	1960

APPENDIX II—*contd.*

Crustace and Molluses Fresh Chilled or Frozen Salted Dried or Cooked

Quantity in Metric Tons
Value Rs. in Lakhs

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	409	7·36	8·30	4·14	2030
U.S.A.	1771	31·86	88·36	44·10	4989
Singapore	133	2·39	4·38	2·19	3293
Kuwait	..	..	..	..	..
Mauritius	60	1·08	1·10	0·55	1833
U.K.	..	..	..	..	..
Burma	2546	45·81	77·14	35·50	2794
Hong Kong	296	5·33	10·17	5·08	3433
Australia	125	2·25	7·98	3·98	6364
Belgium	..	..	..	..	..
Canada	..	..	..	..	..
Italy	..	..	..	..	..
Sweden	..	..	..	..	..
Denmark	..	..	..	..	..
Netherland	..	..	..	..	..
Malaya	..	..	..	..	..
Other countries	218	3·92	8·95	4·46	4112
Total	5558	100·00	200·38	100·00	3605

Fish Products and Fish Preparations in Air Tight Containers

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	..	..	..	..	..
U.S.A.	663	76·12	37·54	69·70	5663
Singapore	..	..	..	..	..
Kuwait	..	..	..	..	..
Mauritius	..	..	..	..	..
U.K.	59	6·77	5·00	9·28	8528
Burma	9	1·03	0·41	0·76	4357
Hong Kong	16	1·84	0·54	1·00	3286
Australia	..	..	..	..	..
Belgium	4	0·46	0·33	0·61	8250
Canada	47	5·40	4·63	8·60	9929
Italy	11	1·26	0·89	1·65	7824
Sweden	16	1·84	0·83	1·54	5167
Denmark	5	0·57	0·36	0·67	7200
Netherlands	5	0·57	0·41	0·76	8857
Malaya	..	..	..	..	..
Other countries	36	4·14	2·92	5·43	8037
Total	871	100·00	538·6	100·00	6181

APPENDIX II—*concld.*

Fish Products and Fish Preparations not in Air Tight Containers

Quantity in Metric tons
Value Rs. in lakhs

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	10	3·37	0·03	2·14	300
U.S.A.	..	..	..	..	..
Singapore	91	30·64	0·27	19·29	298
Kuwait	..	..	..	..	..
Mauritius	..	..	..	..	..
U.K.	1	0·34	0·07	5·00	7333
Burma	..	..	..	..	
Hong Kong	..	..	..	..	..
Australia	..	..	..	..	..
Belgium	..	..	..	..	..
Canada	..	..	..	..	..
Italy	..	..	..	..	..
Sweden	..	..	..	..	..
Denmark	..	..	..	..	..
Netherlands	..	..	..	..	..
Malaya	184	61·95	0·66	47·14	357
Other Countries	11	3·70	0·37	26·43	3394
Total	297	100·00	1·40	100·00	473

Total Fish and Fish Products

Countries	Average Quantity	% to the total	Average Value	% to the total	V.P.T.
Ceylon	8264	53·36	134·27	31·94	1625
U.S.A.	2443	15·77	126·29	30·04	5169
Singapore	471	3·04	16·22	3·86	3444
Kuwait	5	0·03	0·11	0·03	2200
Mauritius	301	1·94	5·64	1·34	1874
U.K.	149	0·96	17·19	4·09	11536
Burma	2668	17·23	73·79	17·55	2766
Hong Kong	354	2·29	15·13	3·60	4274
Australia	125	0·81	7·98	1·90	6384
Belgium	4	0·03	0·33	0·08	8259
Canada	47	0·30	4·63	1·10	9851
Italy	11	0·07	0·89	0·21	8091
Sweden	16	0·10	0·83	0·20	5188
Denmark	5	0·03	0·36	0·99	7200
Netherlands	5	0·03	0·41	0·09	8200
Malaya	184	1·19	0·66	0·16	359
Other countries	435	2·82	15·69	3·72	3607
Total	15487	100·00	420·40	100·00	2157

APPENDIX III

Export of Frozen and Other Shrimps (Prawns) from India

Quantity in Metric tons
Value Rs in lakhs

Countries	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
U.S.A.	1108	52·22	1434	68·88	2735	141·66	3729	187·99
Burma	2480	66·19	3507	94·42	1650	52·80	1698	54·47
Hongkong	242	7·83	307	10·30	340	12·39	315	11·49
Ceylon	258	5·80	440	8·41	528	10·68	443	7·37
Singapore	161	5·43	146	4·60	92	3·11	92	3·16
Mauritius	128	1·39	..	..	52	1·91	60	2·47
U.K.	15	0·76	14	1·00	27	1·51	32	1·64
Canada	6	0·40	11	0·83	24	2·06	31	2·07
France	10	0·51	7	0·65	3	0·19	5	0·42
Auatralia	58	3·45	206	13·12	112	7·36	391	25·64
Other Countries	72	1·55	341	13·12	117	3·66	544	18·95
Total	4538	145·53	6413	215·33	5680	257·33	7340	315 67

Source—Monthly Statistics of Foreign Trade of India.

सत्यमेव जयते

APPENDIX IV

Export of Canned Shrimps, Fish, Maws and Shark Fins from India

Quantity in Metric Tons
Value Rs. in Lakhs

Countries	Canned Shrimps (Prawns)				Fish maws				Shark fins			
	1962-63		1963-64		1962-63		1963-64		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
U.S.A. . .	1066	59·45	893	48·38	..	..	..	..	..	..	5	0·19
U.K. .	79	6·98	52	4·79	70	13·44	40	7·16	..	..	4	0·47
Burma . .	24	1·10	..	..	..	..	..	..	..	..	..	..
Belgium . .	12	0·99	3	0·20	..	..	..	..	..	..	..	..
Canada . .	85	8·70	78	6·60	..	..	..	..	..	..	..	..
Hong Kong . .	42	1·37	..	..	24	3·71	20	3·06	32	2·62	31	2·79
Italy . .	17	1·08	22	1·53	..	..	..	..	..	..	..	..
Singapore .	..	..	..	..	33	3·77	62	8·20	164	8·09	230	13·32
Malaya . .	..	..	..	..	..	..	3	0·12	3	0·17	21	0·97
Others . .	77	4·30	58	4·48	2	0·27	Neg.	0·01	2	0·25	2	0·08
Total .	1402	83·97	1106	65·98	129	21·19	125	18·55	201	11·13	293	17·82

Neg. : Negligible

APPENDIX V

Details of Import Entitlements for Exports of Fish

Entitlement	Export product	Import entitlement (% of the f.o.b. export Value)	Materials permitted to be imported	Remarks
1	2	3	4	5
A. General entitlement against exports	Fish and Fish Products preparations including frog legs, lobster trails, shark fins, fish maws, prawns powder, fish pickles and other edible fish (extractions)	15%	(*i*) Fishing hooks (not exceeding 33⅓% of the face value of the licence) (*ii*) Synthetic Filament yarn of 210 and above deniers (not exceeding 80% of the face value of the licence) (*iii*) Nylon twine of 210×3 Deniers (not exceeding 80% of the face value of licence. (*iv*) Hemp fibre/twine (not exceeding 66⅔ of the face value of licence) (*v*) Dammar Batu (not exceeding 66-2/3% of the face value of the licence) (*vi*) Citric Acid (not exceeding ¼% of the f.o.b. exports value).	Up to 10% of the f.o.b. Value of exports from within the overall import entitlement of 15% may be utilised for the import of consumable stores, machinery, machinery spare parts and components of freezing, processing and cold storage machinery/equipment for modernisation, replacement or for better finishing of processed fish products and marine Diesel Engines.
B. Entitlement for Packing materials	Fish and Fish Preparations, canned.	5%	Fibre board Printed labels and parchment paper.	Upto 2½% of the f.o.b. export value from within the import entitlement of 5% will be utilised for import of fibre board cartons.
	Do.	7½%	Tin plates	Not indigenously available and used in the manufacture of cans in which the export products is packed.
	Frozen fish and frog legs.	5%	Printed waxed cartons of fibre board for manufacture of cartons and master cases.	

NOTES—

(*a*) Within the over-all entitlement specified in Col. 3, Blocks for printing cartons will be licenced on ad hoc basis to meet the actual requirements.

(*b*) Licences for printed labels are to be issued, provided the words 'Made in India' are printed in prominent letters at a prominent place.

CHAPTER X

LAC

Lac is a natural resin of animal origin which finds extensive application in industry. It is a resinous protective secretion of an insect called "Laccifera Lacca" which lives by sucking the sap of certain host trees like 'Kusum', 'Ber' and 'Palas'. The insects cover their body with lac secretion and the resinous incrustations that are developed are later scrapped from the twigs and branches of the host trees and are called commercially 'stick lac'. The stick lac is subjected to grinding and washing and the resultant product is known as 'seed lac'. From the seed lac, 'shellac' is obtained either by melting or by extracting the resins by solvents.

2. India is the largest producer of lac and contributes nearly 80 per cent of the total world production. Thailand, Burma and Malaysia are the other countries producing lac. Till a few years ago, lac used to be imported into India and re-exported after processing. But now many countries have developed their own export trade and are exporting lac directly to the consuming markets. Lac is used in many industries like varnishes, paints, polishes, electrical insulations, gramophone records, plastic moulds, sealing waxes etc. It is also used in many industries as a bonding agent in the grinding wheel, in the stiffening of hats, in rubber compositions and in jewellery.

EXPORT TRENDS

3. **Quantity and Value**—Statistics showing the quantum and value of exports of lac and lac products from India for the last 10 years ending 1963-64 are given in Appendix I. We exported 20.7 thousand tonnes of lac and lac products during the year 1963-64. Our annual exports used to be between 26.5 and 29 thousand tonnes during the years 1954-55 to 1960-61 but they came down to 20.7 thousand tonnes in 1961-62. The unit value realised by the export of lac and lac products varied between Rs. 2190 and 4038 during this period, fluctuating widely from year to year. The average annual unit value was much lower in the latter of these two quenquennia. Consequently, our foreign exchange earnings from lac and lac products were only Rs. 480 and Rs. 462 lakhs during 1962-63 and 1963-64 as compared with the annual average of about Rs. 765 lakhs during the preceding 8 years and Rs. 632 lakhs in 1960-61.

4. Statistics showing the quantity and percentage of different kinds of lac and lac products exported by India during the various quinquennia beginning from 1934 are given in Appendix II. These show that the bulk of lac is exported in the form of shellac. The relative importance of shellac in the quantum of the exports of these products has declined during the last three decades from about 62 per cent to 63 per cent during 1930's to about 53 per cent in the period 1959—63. The share of button lac has also declined from about 4 per cent to 2 per cent during this period. On the other hand, the share of seed lac has increased from about 27 per cent to about 37 per cent. One of the reasons for this tendency is that foreign buyers are interested in refining the seed lac according to their requirements, preferably as bleached lac. Of late, bleached lac has become the

main form in which lac is used in the United States. It is also gaining importance in the European markets. Unfortunately the lac bleaching industry in India has not expanded. If we can process seed lac to the desired form and quality, the export of the processed product can be increased substantially.

5. It is well-known that shellac is being used in conjunction with high-priced synthetic resins such as epoxy and acrylate. There are a number of foreign patents on the subject. It may be desirable to discuss with the synthetic resin industry of the foreign countries the possibility of adding lac to some of their synthetic products. Every effort should be made to encourage the use of shellac with synthetics in India as well.

6. **Directions of Exports**—Statistics showing the country-wise average annual quantum and value of exports of lac and lac products as well as the value per tonne during the triennia ending 1959-60 and 1962-63 are given in Appendix III. The largest importer of these products during the triennium ending 1962-63 was USA accounting for about 32 per cent of our total exports. The shares of West Germany, U.K. and U.S.S.R., which came next in importance, came to 13 per cent, 12 per cent and 9 per cent respectively. The other countreis which import these products from us are Australia, Canada, France, Italy, Netherlands and Sweden. The quantum of exports went down in the secnod triennium in the case of every country except U.S.S.R. The decline ranged from about 1 per cent to 40 per cent.

7. The unit value realised from different countries ranged from Rs. 1670 for West Germany to about Rs. 3392 for Australia. Though the average unit value has remained practically stationary during these triennia, it declined in several cases and rose in the case of Australia, West Germany, Italy and USSR. As a result of variation in the quantum and the unit values, the relative contribution of importing countries to our foreign exchange earnings declined in many cases, the most marked being in the case of USA whose share fell from about 41 per cent to about 29 per cent. It rose in the case of West Germany from about 7 per cent to about 9 per cent and in the case of USSR from about 5 per cent to about 10 per cent.

EXPORT EXPANSION

8. **Demand**—Prior to World War II, India was holding a monopoly of lac trade. After the War, Thailand entered the world market as a competitor with India. Thailand does not manufacture shellac and is practically the only competitor of India in seed lac. Thailand steadily increased her exports of seed lac and brought them by 1957 nearly to the same level as India's, as is shown in the following table:

TABLE 1

Export of Seed Lac from India and Thailand

Metric tons

Country	1957		1958		1959	
	Qty	% to the Total	Qty.	% to the Total	Qty.	% to the Total
India	9363	52	13249	78	12032	72
Thailand	8689	48	3672	22	4801	28
Total .	18052	100	16921	100	16833	100

TABLE 1—contd

Metric tons

Country	1960		1961		1962	
	Qty.	% to the total	Qty.	% to the total	Qty.	% to the total
India	9565	56	9029	56	6597	33
Thailand . . .	7494	44	7093	44	13168	67
Total	17059	100	16122	100	19765	100

India's share of the total (India and Thailand) exports has fluctuated widely during these six years. During 1958 India considerably improved her position vis-a-vis Thailand, but it has been deteriorating progressively since. The detorioration was very marked in 1962 with the result that her exports were reduced to half of those from Thailand.

9. The most important problem, therefore, in the export expansion of lac is to meet the situation arising out of this competition. Both the cost of cultivation and of processing are lower in Thailand than in India. Consequently, Thailand is in a position to supply seed lac at lower prices than India. Other countries in South-East Asia such as Burma, Laos and Cambodia are also encouraging lac production and in course of time they may become active competitors with India and effect her lac trade. To counteract these factors, the price of Indian lac should be kept at a reasonable level. Though Indian lac is superior to the Siamese Lac, the latter has made good head way in the international markets, specially in the U.S.A. The American manufacturers appear to have evolved a process of improving the quality of Siamese lac by blending it with the Indian lac.

10. **Prices**—The following table shows the relative prices of Indian and Thailand seed lac in the US markets, together with the internal prices at Calcutta:—

TABLE 2

Prices of Lac in India and at U.S. Ports

Period	Internal Prices (at Calcutta) Rs. per quintal	Prices of Lac in India at U.S. Ports			
		Indian seedlac (cents per lb)	Thai seedlac (cents per lb)	Diffe-rence	Dififf. as percentage of Indian Indian prices
1	2	3	4	5	6
1958	194·19	22·25	23·00	0·75	3·37
1959	199·20	22·25	19·00	3·25	14·61
1960	193·17	22·25	17·50	4·75	21·35
1961 March . . .	169·05	22·25	14·00	8·25	37·08
1962 March . . .	139·00	21·00	13·00	8·00	38·09
1963 Jan, April . .	81·00	19·50	7·25@	12·25	62·52
1963 Feb. . . .	123·00	18·00	12·00	6·00	33·33

@ Mean.

The relative prices of Indian and Thai lac have changed significantly during the above period. Whereas in 1958 Thai prices were higher than those of Indian lac, they have fallen since and in 1963 were lower by 62 per cent as compared with those of Indian lac. Another noticeable feature is that the prices of Indian seed lac in USA varied within a comparatively narrow range viz., between 18 cents and 22.25 cents per lb. as compared to 7 cents to 23 cents in respect of Thai lac.

11. With a view to boosting up exports and stabilising prices, the Government of India introduced in June, 1958, a minimum export price scheme. While there has been some improvement in regard to the export prices, the same cannot be said of internal prices, as figures in the above table (col. 2) would show. The prices of lac in the internal markets have been going down and fell steeply during 1960-63. The advantage of the minimum export price appears to have gone more to the middleman than to the producer. In order to ensure remunerative prices to the growers, a price support scheme has been in operation since December, 1961 under the aegis of the State Trading Corporation which has opened purchasing centres in important lac producing areas. As a result, there has been some improvement in 1964.

12. An Indian lac Delegation, sponsored by the Shellac Export Promotion Council, visited Thailand in July, 1963, in order to evolve a coordinated export policy. It held discussions with the Thai Lac Association, a non-official organisation of manufacturers and exporters. The Delegation was informed that certain arrangements had been made by the manufacturer members of this Association to control the production and prices of lac. It seemed that this arrangement has had a salutary effect on the prices of Thai Lac. Consequently, Thai lac, which was selling at 7 to 7½ per. cents per lb. during January to April, 1963 was quoted at 12 cents per pound in Feb., 1964. An effective control on prices can be exercised in Thailand through manufacturing units, seven of whom are quite large Five of them, which are in actual production, have come to an agreement not to sell seed lac at a price lower than 10 cents per pound. The Delegation suggested to the Thai Lac Association that a formal shape be given to the existing arrangement so that it might not boceme ineffective under pressure of buyers or when the supply is large. The Delegation also impressed upon the Thai Government the desirability of pooling together the resources for research in order to discover new uses of lac and for undertaking marketing surveys, advertisements and publicity. It was impressed upon them that increased production over normal output of both the countries should be attempted only after new uses of lac had been discovered so that there was no imbalance between demand and supply. These recommendations deserve to be pursued.

13. Another threat to the export of lac is the increasing use of synthetic substitutes. This points to the need for promoting research in collaboration with foreign exports and organisations on wider industrial uses of lac. The research should be directed towards uses of lac in conjunction with synthetics. While the main responsibility should rest with the Indian Lac Cess Committee, some of the problems could also be tackled by other research institutes.

14. **Production**—The production of lac in India has varied between 24.4 thousand tonnes and 52.8 thousand tonnes during the decade ending 1962-63. The annual fluctuations have ranged between (–) 43 per cent and

(+) 56 per cent during this period. During 1959-60 and 1960-61 the production recorded an upward trend and reached about 53 thousand tonnes, the peak of the period, but it again declined in 1961-62 and 1962-63 with the result that it was at its lowest ebb in 1962-63 with 34 thousand tonnes. The target of production at the end of the Third Five Year Plan has been fixed at 62 thousand tonnes. The target is not likely to be reached. To raise production the prices should be made remunerative to the growers. Unfortunately, the internal prices of lac have been going down. Domestic consumption rose during the World War II to meet the defence requirements of lac and lac products but has been shrinking since then particularly due to the high cost of lac products and the consequent shift to cheaper substitutes.

15. **Marketing**—For ensuring a reasonable price to the growers of lac as well as for keeping the export prices competitive in the world markets, it is necessary to provide an organised marketing system. At present stick lac passes through a number of intermediaries because of which the producers share in the consumer's price is reduced considerably. One of the reasons for this is the poor holding capacity of the producer due to which he has no option but to sell the goods to the contractors. Besides, many marketing charges are in vogue in the markets. Cooperative marketing can play an important role in removing these handicaps. Steps should, therefore, be taken for encouraging and fostering cooperative marketing.

16. **Quality Improvement**—Lac products, which are exported, are subjected to qualitative tests before shipment. These tests have been necessitated by adulteration of lac and lac products with other commodities, such as stone, sand and other insoluble impurities. Shellac is adulterated with gur, resin and orpiment etc. at the melting stage while it is blended with inferior lac. Even salt can be added to lac without being easily detected during analysis. The extent of adulteration varies from 5 per cent to 20 per cent. At present the Indian Lac Exporters Association in Calcutta enforces the quality control over lac. M/s Briggs and Co. are the official samplers of the U.S. Shellac Importers Association. All tests on lac exports to USA are carried out in accordance with the standards prescribed by this Association. Before any consignment is accepted by the U.S. Shellac Importers' Association, it has to be accompanied by a certificate of inspection furnished by this firm. In the case of exports to U.K., the analysis is done in London as they have no official samples in India. For exports to other countries, the quality check is exercised by the Indian Lac Exporters Association. Thus at present quality control is exercised on behalf of buyers. This is not always fair to the sellers. For an effective and fair system of quality control, this control should be exercised by Government.

17. The usual trade descriptions of shellac and seed lac which are based somewhat indiscriminately on the Indian names of the host trees or the season of cropping, or visual differences or on ad-hoc descriptions, such as fine, superfine or extra fine or a combination of these, have failed to distinguish different grades. The standards of quality represented by these names has not been constant but has varied from year to year and from one country to the other. For example, the London Superfine and the American Superfine are recognised in the trade as different qualities. There has also been a tendency to introduce new names to describe slight variations of the commercially known varieties. The distinction between

hand-made and machine-made shellac has not been rigidly observed. The need for an agreed inter-national standard specification for this important commodity in international trade is obvious.

18. The International Standards Organisation has framed specifications for shellac and seed-lac for international trade. These are in conformity with national standards framed by the Indian Standards Institution. These national standards are also in conformity with those laid down for grading under the Agricultural Produce (Grading and Marking) Act.

19. **Storage and Transport**—Suitable and adequate storage facilities are not available with either the producers or the intermediaries. To promote organised marketing, public storage units should be established at important producing and processing centres. More cold storage units should also be started at the assembling and terminal markets to prevent deterioration in the quality of lac.

20. The main transportation problem of importance occurs in the monsoon season. The combination of heat and humidity then causes deterioration in lac during shipment from up country centres to Calcutta unless it is refrigerated. There is need for providing more refrigerated wagons during the monsoon. The development of refrigerated storage godowns at Calcutta will ease this problem to some extent.

21. It is for consideration whether it would not be desirable to set up a Lac Development and Export Corporation which should replace both the Lac Cess Committee and the Shellac Export Promotion Council and through which all exports should be channelised. This Corporation can give assistance to growers, set up cold storages and processing factories, where necessary, buy off all lac and sell it at such prices as it considers suitable. It should be ready to suffer losses in a particular year, if necessary, and make them up in more favourable years. There is bound to be resistance to a Government sponsored organisation both from the Indian and foreign vested interests. But our lac is superior in quality and the foreign lac trading interests are, therefore, bound to reconcile themselves to the existence of this organisation.

22. **Export Target**—Considering the fact that we have to face keen competition from synthetics and from Thailand in the matter of export trade, we may not be able to effect any substantial increase in the export of lac in the near future. We may, however, try to maintain the present level of exports, viz., about 21 thousand tonnes per year till the end of the Fourth Five Year Plan.

CONCLUSIONS AND RECOMMENDATIONS

1. (a) There is need to improve our production techniques so that we are able to meet the demand for bleached lac. (Para. 4)

(b) It may be desirable to discuss with the foreign synthetic resin industry the possibility of adding lac to some of the synthetic products in foreign countries. Every effort should be made to encourage the use of shellac with synthetics in India as well. (Para. 5)

2. The most important problem in the export expansion of lac and lac products is to meet the situation arising out of competition from Thailand. To counteract this, the price of Indian lac should be kept at a reasonable level. (Para. 9)

3. The following recommendations made by the Indian Delegation sent to Thailand deserve to be pursued:—

(a) a formal shape may be given to the existing arrangement made by the Thai Lac Association to control the production and prices of lac.

(b) The resources for research in order to discover new uses of lac and for undertaking marketing surveys, advertisement and publicity, should be pooled together by the Indian and Thai Governments.

(c) Increased production over normal output should be attempted by both these countries only after new uses of lac have been discovered so that there is no imbalance between demand and supply. (Para 12)

4. There is need for promoting research in collaboration with foreign exports and organisations on wider industrial uses of lac. (Para 13)

5. For ensuring reasonable prices to the growers of lac as well as for keeping the export prices competitive in the world markets, it is necessary to provide an organised marketing system. Steps should, therefore, be taken for encouraging and fostering cooperative marketing. (Para 15)

6. At present quality control on exports is exercised on behalf of buyers. This is not always fair to the sellers. For an effective and fair system of quality control, this control should be exercised by Government. (Para 16)

7. There is need to draw up an agreed international standard specification for this important commodity of international trade. (Para 17)

8. More cold storage units should be set up at the assembling and terminal markets so that deterioration in quality could be prevented. (Para 19)

9. There is need for providing more refrigerated wagons for movement of lac from up-country centres to Calcutta. Development of refrigerated storage godowns at Calcutta is also needed. (Para 20)

10. It is for consideration whether it would not be desirable to set up a lac development and export corporation which should replace both the Lac Cess Committee and the Shellac Export Promotion Council and through which all exports should be channelised. (Para 21)

11. We may try to maintain the present level of exports, i.e., about 21,000 metric tons per year till the end of the Fourth Five Year Plan. (Para 22)

APPENDIX I

Exports and Value Per Tonne of Lac and Lac Products

Year	Quantity (Metric tons)	Value (Rs. in lakhs)	V.P.T. (Rs.)
1954-55	27,044	1054·83	3097
1955-56	28,884	1171·12	4038
1956-57	28,501	946·11	3262
1957-58	27,100	686·05	2541
1958-59	26,472	569·31	2190
1959-60	27,065	599·31	2331
1960-61	27,358	631·94	2341
1961-62	20,666	461·60	2198
1962-63	20,823	479·61	2284
1963-64	20,656	462·23	2238

APPENDIX II

Exports of Different Kinds of Lac from India

(In metric tons)

Period (Average)	Shellac	Button Lac	Seed Lac	Stick Lac	Other Kinds of Lac	Total
1934-39 . . .	20386 (62·4)	1243 (3·8)	8837 (27·1)	186 (0·6)	1998 (6·1)	32650 (100·0)
1939-44 . . .	17365 (63·8)	875 (3·2)	8339 (30·7)	23 (0·1)	607 (2·2)	27209 (100·0)
1944-49 . . .	16004 (60·9)	910 (3·5)	7772 (29·6)	16 (0·1)	1545 (5·9)	26247 (100·0)
1949-54 . . .	17918 (58·1)	932 (3·0)	9871 (30·0)	194 (0·6)	2548 (8·3)	30863 (100·0)
1954-59 . .	13900 (51 8)	641 (2·4)	9820 (36·6)	81 (0·3)	2379 (8·9)	26821 (100·0)
1959-63 . . .	12681 (52·9)	546 (2·3)	8822 (36·8)	153 (0·6)	1776 (7·4)	23978 (100·0)

Figures in brackets show percentage to total.

APPENDIX III

Country-wise Average Quantum, Value and Value per tonne of Exports of Lac and Lac Products

Quantity—Metric tons
Value—Rs. in lakhs

Destination	1st Triennium (1957-58 to 1959 60) Average Annual Quantity	Percentage to the total	Average Annual Value	Percentage to the total	V.P.T. (Rs.)
Australia . . .	497	1·85	16·81	2·72	3381
Canada	430	1·60	9·48	1·53	2204
France	523	1·95	13·45	2·18	2574
Germany West . .	3071	11·43	42·43	6·86	1382
Iatly	676	2·51	17·22	2·79	2544
Netherlands . . .	174	0·65	4·88	0·79	2797
Sweden . . .	186	0·69	6·46	1·05	3473
U.K.	3388	12·60	83·79	13·55	2473
U.S.A. . . .	11514	42·84	252·45	40·83	2193
U.S.S.R. . . .	1175	4·37	29·07	4·70	2473
Others	5245	19·51	142·18	23·00	2711
Total .	26879	100·00	618·22	100·00	2300

Destination	II Triennium (1960-62 to 1962-63) Average Annual Quantity	Percentage to the total	Average Annual Value	Percentage to the total	V.P.T. (Rs.)
Australia . . .	410	1·79	13·91	2·65	3392
Canada	358	1·56	7·07	1·35	1972
France	520	2·27	13·22	2·52	2542
Germany West . .	2948	12·85	49·23	9·39	1670
Italy	536	2·34	14·24	2·72	2654
Netherlands . . .	157	0·68	3·91	0·74	2498
Sweden . . .	112	0·49	3·54	0·68	3142
U.K	2808	12·23	67·52	12·88	2405
U.S.A.	7361	32·08	152·82	29·14	2076
U S.S.R. . . .	2027	8·83	50·39	9·61	2486
Others	5712	24·88	148·53	28·32	2600
Total .	22949	100·00	524·38	100·00	2285

सत्यमेव जयते

CHAPTER XI

NATURAL GUMS AND RESINS

1. India produces a large variety of gums, the more important of which are Karaya, Arabic and Salai or Indian Olibanum. She also produces a few resins. Some information on the sources of their production and their commercial uses and importance is given below:

GUM KARAYA

2. Gum Karaya is obtained from a deciduous tree known as *Sterculia urens,* Roxb common mostly in dry and rocky areas.

3. Among the exudate gums, gum karaya ranks second only to gum arabic in commercial importance in the world trade. Originally introduced as an expensive substitute for the foreign gum tragacanth, gum karaya has, of late, found many large-scale uses because of its unique properties. Its chief application is in the pharmaceutical, paper, food and textile industries.

4. The present method of tapping the gum from the trees is considered harmful to the trees and, as a result, a large number of tree die. Investigations are being taken up at the Forest Research Institute, Dehra Dun, to evolve a method of tapping that might give a good yield with the least damage to the tree. The Institute may be asked to accord priority to this project.

5. The gums of *Cochlospormum gossypium* D.C. and *Sterculia* villosa Rexb also come under the group of gum karaya, but are exploited to a lesser extent. Efforts should be made to collect more of these gums for export.

DHAURA OR GHATTI GUM

6. Dhaura or ghatti gum is obtained from *Anogeissum latifolia Wall,* a common tree, found in most of the deciduous forests of India. In India, it is used for calico printing and in pharmaceuticals. This gum is in great demand in the U.S.A., where it is used extensively in petroleum industry, as a drilling mud conditioner and in the explosive industry and as a preferential water absorbant. It is also used as an emulsifier, stabiliser and thickner in ceramics, foods and pharmaceuticals.

SALAI GUM OR INDIAN OLIBANUM

7. Salai gum or Indian olibanum is obtained from *Boswellia Serrate* Roxb., a tree occurring in most of the dry deciduous forests in India. This gum is used as an incense and in medicinal ointments. In large cities, such at Bombay, it is specially prized as a fire-lighter for domestic.

8. Investigations are being taken up at the Forest Research Institute, Dehra Dun, to evolve a suitable method of tapping and economic utilisation of the trees yielding salai gum. The Institute may be asked to accord priority to this project.

9. Researches conducted at the Forest Institute, Dehra Dun, have revealed that a good substitute for Canada balsam can be prepared from this gum for mounting microscopic slides. This fact needs to be given adequate publicity with a view to drawing the attention of foreign buyers to this new use of the gum as there is reported to be an export market for this.

RESINS

10. Nearly all the resin (oleoresin) obtained in India is tapped from the chir (Pinus rexhughii) Sargent, syn *P. Longifolia Roxb*, a tree abundant in the Himalayas at an altitude of 400 to 2,200 m. The trees are systematically tapped for the oleoresin mainly in Kashmir, Punjab, Himachal Pradesh and in parts of Uttar Pradesh. The other Indian species of *Pinus* yield oleoresin which, however, is not yet produced commercially. They are (a) *P.Griffithi* M. Clell (P. excelsa *Wall*), the blue pine or kail. This tree occurs in the temperate Himalayas at an altitude of 1,800 to 3,600 m. The turpentine of this species is superior to that of *chir*. But its exploitation is still considered to be uneconomic. (b) *P. Khasya* Royle—the Khasi pine; this tree is found in Khasi hills of Assam. The turpentines of this species compares favourably with the superior foreign turpentines. But it is not commercially exploited as the tree has not yet been successfully tapped economically. (c) *P.gerardiana* Wall. It is a tree inhabiting the N. W. Himalayas at an altitude of 1,700 to 3,600 m. The turpentine of this species also is superior to that of *Chir*, but commercial exploitation is considered uneconomic.

EXPORTS

11. Figures showing the quantity and value of exports of natural gums and resins during the years 1960-61, 1961-62, 1962-63 and 1963-64 are given in Appendix I. The Foreign Trade of India reports statistics for 7 gums separately and the rest are included under 'other gums', which account for about 76 per cent of the quantity and 48 per cent of the value of gums and resins exported in 1963-64. During this year over 21,000 metric tons of gums (resins constitute a negligible proportion) were exported and these fetched a foreign exchange of about 340 lakhs of rupees. The most importtant gum from the export angle is Karaya accounting for about 23 per cent of the total quantity and 51 per cent of the total value of gums and resins exported in 1963-64. Both the quantity and value of exported gums declined in 1961-62 but the position improved in 1962-63. The upward trend continued in 1963-64.

12. The export value per ton of gum and resins came to 1584 rupees in 1963-64. Karaya, the principal export gum fetched the highest return per ton, viz., Rs. 3447. Its value per ton has risen steadily from Rs. 2383 to Rs. 3447 during these years. On the other hand, the unit value of other gums has fluctuated between Rs. 873 and Rs. 1110.

13. Indian gums and resins are exported practically to all parts of the world. The principal importers of Karaya and 'other gums' are U.S.A., U.K., France, West Germany, Netherlands, Italy and Spain. The relative shares of these countries in the value of our exports of Karaya and 'other gums' during 1960-61 to 1963-64 are given in Appendix II. U.S.A. is by far the largest importer of these gums. In 1963-64, 62 per cent of the export value of Karaya and 57 per cent of that of other gums came from our exports to U.S.A. Next in importance is France for Karaya and Italy for

other gums. France contributed about 13 per cent and Italy about 20 per cent of the value of exports of Karaya and other gums respectively in 1963-64.

14. The relative importance of U.S.A. and France in regard to Karaya has remained practically unchanged during the last 3 years. A slight rise has occurred in 1963-64, in the relative share of U.K., West Germany and other countries and a fall in that of Italy.

15. U.S.A.'s relative importance as buyer of 'other gums' was showing a progressive decline till 1962-63 having come down from 54 per cent to 43 per cent in 1961-62 and to 36 per cent in 1962-63. It staged a marked recovery and went up to 57 per cent in 1963-64. The share of Italy has declined from about 35 per cent in 1961-62 to about 20 per cent in 1963-64. The share of Netherlands also fell sharply in 1963-64.

IMPORTS

16. Figures showing the quantities and values of gums and resins imported in India during 1960-61 to 1963-64 are given in Appendix III. About 5,000 metric tons of gums and resins valuing about Rs. 61 lakhs were imported by us during 1963-64. While we export practically no resins, we import substantial quantities of them. Among gums, Arabic, Asafoetida and other gums and among resins Batu, copal and Dammar are the important import varieties. Of the total gums and resins, gums represent over 3,000 metric tons, valuing about 43 lakh rupees and resins represent about 22,000 metric tons, valuing about 18 lakh rupees in 1963-64.

17. Figures showing the relative importance of the *chief import gums and resins* on the basis of their value are given in the following table:

TABLE 1

Relative Importance of Principal Gums and Resins Imported in India

Gum/Resin	1960-61	1961-62	1962-63	1963-64
Gums—				
Arabic	43·43	31·84	44·79	33·19
Asfoetida	14·05	2·81	11·51	15·71
Binjamin Cowri	6·45	7·22	2·37	1·80
Kodopan.	3·37	4·26	2·12	1·81
Other gums	4·84	6·75	8·03	8·73
Total—Guns	81·21	65·94	75·24	69·83
Resins—				
Batu	9·40	15·38	5·99	11·34
Copal	4·53	8·74	8·42	10·28
Dammar	2·01	6·95	6·71	3·97
Total—Resins	18·79	34·06	24·76	30·17
Total—Gums and resins	100·00	100·00	100·00	100·00

The most important among imported gums is the Arabic, accounting for about 33 per cent of the foreign exchange spent on gums and resins in 1963-64. Asafoetida and 'other gums' account for about 16 per cent and 9 per cent respectively of the value of imports of gums and resins. Resins account for about 30 per cent of the expenditure of foreign exchange on gums and resins.

BALANCE OF TRADE

18. India is a net exporter of these commodities both in terms of quantity as well as value as shown by figures in Appendices I and II. The following table shows the balance of trade in gums and resins in terms of both quantity and value for the years 1960-61, 1961-62, 1962-63 and 1963-64.

TABLE 2

Balance of Trade in Gums and Resins

Value (Lakh Rs.)

Year	Export	Import	Surplus Balance
1960-61	15,560	8,968	6,592
1961-62	11,491	5,317	6,174
1962-63	15,388	4,922	10,466
1963-64	21,508	5,201	16,307

Year	Export	Import	Balance
1960-61	211·61	189·09	22·52
1961-62	197·73	112·45	85·28
1962-63	248·28	94·75	153·53
1963-64	340·65	61·19	279·46

Our annual exports of these commodities during these years have exceeded the imports by 6 to 16 thousand metric tons. The surplus showed a marked rise in 1962-63 and 1963-64 because exports rose markedly and imports witnessed a decline. The surplus balance in terms of value has been rising quite rapidly. From a bare 22.5 lakh rupees in 1960-61, it rose to Rs. 85 lakhs in 1961-62, lept up to Rs. 153.5 lakhs in 1962-63 and again to Rs. 279.46 lakhs next year. This has been brought about by a spurt in the unit value in 1961-62 and by a rise in the volume of exports in 1962-63 and 1963-64.

EXPORT POTENTIAL

19. It is very difficult to make reasonably reliable estimates of possibilities of raising the level of exports of these commodities because we have little information on the volume of production, yields etc. Nor are there data about the extent to which foreign markets could absorb additional supplies of gums and resins if these were available. It is, therefore, necessary that intensive studies are conducted to collect data regarding the production, internal consumption and prospects of export of gums and resins.

QUALITY CONTROL

20. Production of gum Karaya for which alone figures of production are available is estimated at 7 thousand tons per year. Of this, about 5 thousand tons or about 70 per cent is exported. There is need to introduce compulsory quality control in gum karaya for purposes of export.

CONCLUSIONS AND RECOMMENDATIONS

1. Investigations are being taken up at the Forest Research Institute, Dehra Dun, to evolve a suitable method of tapping the trees yielding Gum Karaya. The objective is to secure yields with the least damage to the trees. The institute may be asked to accord priority to this project. (Para 4).

2. Efforts should be made to collect for export more gum karaya from trees known as *cochlospormum gossypium* D.C. and *Sterculia Villosa* Roxb. (Para 5).

3. Investigations are being taken up at the Forest Research Institute, Dehra Dun, to evolve a suitable method of tapping and of economic utilisation of the trees yielding salai gum. The Institute may be asked to accord priority to this project. (Para 8).

4. There is need to introduce compulsory quality control on Gum Karya for purposes of export. (Para 20).

5. Researches conducted at the Forest Research Institute, Dehra Dun, have revealed that a good substitute for Canada balsam can be prepared from salai gum for mounting microscopic slides. There is an export market for this. This fact needs to be given adequate publicity with a view to drawing the attention of foreign buyers to this new use of this gum. (Para 9).

6. Efforts should be made to make an assessment of the scope for commercial exploitation of (i) *pinus griffithi* M'Clell, (ii) *Pinus Khasya* Royle and (iii) *Pinus gerardiana* Wall the trees yielding resins. (Para 10).

7. Adequate data do not exist about the extent to which production of gums and resins could be stepped up. Nor are there data about the extent to which foreign markets could absorb additional supplies of gums and resins if these were available. It is, therefore, necessary to conduct intensive studies to collect data regarding the production, internal consumption and prospects for export of various gums and resins. (Para 19).

सत्यमेव जयते

APPENDIX I

Export of Natural Gums and Resins from India (Summary)

Quantity—Metric Tons
Value—Rupees in Lakhs

Variety	1960-61		1961-62		1962-63		1963-64	
	Q.	V.	Q.	V.	Q.	V.	Q.	V.
Gums								
(*i*) Acacian	4	0·19	3	0·15	—	—	—	—
(*ii*) Arabic	85	2·25	20	0·57	57	1·38	16	0·52
(*iii*) Asafoetida	26	1·76	45	2·82	37	2·64	35	2·65
(*iv*) Benjamin Cowrl	6	0·11	2	0·02	17	0·30	..	..
(*v*) Karya	4,731	112·72	4,569	117·91	5,056	153·36	4,998	172·28
(*vi*) Olibanum or Frankincense	16	0·18	20	0·30	12	0·25	6	0·13
(*vii*) Tragacanth	31	0·94	8	0·28	9	0·33	10	0·45
(*viii*) Other Gums	10,552	92·13	6,808	75·55	10,199	89·96	16,419	164·41
Total Gums	15,451	210·28	11,475	197·60	15,387	248·22	21,484	340·44
Resins								
(*ix*) Mastic gum	Neg.	0·01	Neg.	Neg.	Neg.	Neg.	1	0·03
(*x*) Myrrh gum	99	1·03	16	0·13	1	0·05	23	0·18
(*xi*) Other gum	10	0·29	Neg.	Neg.	Neg.	0·01	—	—
Total Resins	109	1·33	16	0·13	1	0·06	24	0·21
Total Gums & Resins	15,560	211·61	11,491	197·73	15,388	248·28	21,508	340·65

Neg.—Negligible.

APPENDIX II

Value of Exports of Gum Karya and Other Gums

Quantity: Metric Tons
Value: Rs. in Lakhs.

	Gum Karia								Other gums							
	1960-61		1961-62		1962-63		1963-64		1960-61		1961-62		1962-63		1963-64	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
U.S.A. .	71·58	63·50	74·57	63·24	98·63	64·31	107·55	62·43	49·38	53·60	32·42	42·91	32·26	35·86	93·67	56·97
France .	18·09	16·05	17·20	14·59	24·20	15·78	22·49	13·05	..	..	..	..	..	..	5·56	3·38
U.K. .	9·73	8·63	13·29	11·27	14·82	9·66	22·14	12·85	..	..	..	..	3·73	4·15	6·53	3·97
Germany West	7·16	6·35	6·10	5·17	8·34	5·44	9·66	5·61	..	..	..	..	..	..	1·26	0·77
Netherlands .	..	..	..	..	..	..	..	..	7·77	8·43	4·80	6·35	12·36	13·74	5·20	3·16
Italy .	..	..	..	..	..	..	2·25	1·31	27·91	30·29	26·11	34·56	20·09	22·33	32·37	19·69
Spain .	..	..	..	..	..	..	..	..	..	..	..	..	9·15	10·17	16·12	9·81
Others .	6·16	5·47	6·75	5·73	7·37	4·81	8·19	4·75	7·07	7·68	12·22	16·18	12·37	13·75	3·70	2·25
Total .	112·72	100·00	117·91	100·00	153·33	100·00	172·28	100·00	92·13	100·00	75·55	100·00	89·96	100·00	164·41	100·00

APPENDIX III

Imports of Natural Gums and Resins into India

Quantity: Metric Tons
Value: Rs. in Lakhs

Gums/Resins	1960-61		1961-62		1962-63		1963-64	
	Q.	V.	Q.	V.	Q.	V.	Q.	V.
Gums.								
Acacian	33	1·10	46	1·62	8	0·33	27	0·84
African	303	0·98	254	4·61	73	1·51	81	1·68
Arabic	4,813	82·13	2,184	35·80	2,406	42·44	2,592	20·31
Asafeotida	416	26·56	41	3·16	163	10·91	106	9·61
Benjaminhas	13	0·87	20	0·67	..	..	8	0·39
Benjamin Cowri	190	12·19	134	8·12	44	2·25	28	1·10
Karaya	1	0·02	1	0·03	..	..	..	..
Kodofan	238	6·38	174	4·79	60	2·01	49	1·11
Tragacanth	65	4·71	81	5·23	43	3·18	38	2·95
Other Gums	521	9·15	312	7·59	343	7·61	317	6·34
Gum Resin, mastic	19	2·42	4	0·46	1	0·07	4	0·53
Gum Resin, Myrrh	19	0·77	24	0·94	14	0·59	15	0·59
Other Gum Resins	29	1·28	12	1·13	7	0·39	15	0·61
Batu	1,590	17·77	1,047	17·29	891	5·68	1,291	6·94
Copal	316	8·57	346	0·83	277	7·98	229	6·29
Dammar	329	3·81	585	7·82	534	6·36	373	2·43
Other Resins	29	0·78	15	0·62	15	0·53	23	94
Gum rosin	3	0·06	..	..	..	..	5	0·12
Others	35	4·54	40	2·74	43	2·91	Neg.	0·01
Total	8,968	189·09	5,317	112·45	4,922	94·75	5,201	61·19

Neg.—Negligible.

CHAPTER XII

ONIONS

1. Onion (Allium Capa L.) is one of the important commodities among the recognised spices and condiments of the world. The bulbs are used for spicing and other purposes not only in the plump cured form after slicing or grinding with other ingredients but, in the industrially advanced countries, also in the form of powder like other curry powders.

EXPORTS

2. **Quantity**—Statistics, showing the quantum and value (total and unit) of annual exports of onions from India for the last 13 years, are given in Appendix I. We exported 102.7 thousand metric tons of onions during 1963-64 valuing 291 lakh rupees.

3. The exports have generally been rising in recent years. From about 40 thousand tonnes in 1957-58 the exports went up to 114 thousand tonnes in 1961-62 or by 185 per cent. During 1962-63 and 1963-64 there has been a slight fall.

4. **Value**—The value of our onion exports was 264.5 lakh rupees in 1962-63, having declined from 291.3 lakh rupees in 1961-62 or by 9 per cent. It showed some recovery in 1963-64. The annual value has ranged between about 77 lakh rupees (in 1954-55 and 1955-56) and 291 lakh rupees in 1961-62.

5. **Destinations**—Statistics showing the quantity and value of our exports of onion to the various countries during 1956-57 to 1963-64 are given in Appendix II. Ceylon has been by far the most important importer of Indian onions, accounting for 50 per cent to 65 per cent of our exports during this period, valued at 67 lakhs to 189 lakhs of rupees out of our total export earnings of Rs. 135 lakhs to Rs. 291 lakhs. Ceylon depends on India for about 80 per cent of her import requirements. Other important importers of Indian onion are Malaysia and Singapore which respectively accounted for 15 per cent to 26 per cent and 11 per cent to 20 per cent of our export quantity during this period. Pakistan and Burma were also at one time importers of our onions. Due to increase in the home production the imports by Pakistan have been very much reduced.

6. By far the largest contribution to our export earnings from this commodity is also made by Ceylon which has been responsible for 49 per cent to 67 per cent of our annual earnings from this source. The relative share of Ceylon ranged between 49 per cent and 52 per cent during the triennium 1956-57 to 1958-59. Her share went up appreciably (from 52 per cent to 67 per cent) in 1959-60 and has since then varied between 55 per cent and 61 per cent. The other countries, whose relative shares showed an improvement during these years, are Bahrein Islands (1.5 per cent to 1.8 per cent) and Mauritius (1.5 per cent to 1.9 per cent). On the other hand, Singapore's share has declined from 16 per cent to 12 per cent and Kuwait's from 2.8 per cent to 1.6 per cent.

7. **Overseas Demand**—A survey of the traditional markets as well as an exploration of new markets is required for gauging the existing and potential overseas demand for our onions.

8. A survey of the economic and other conditions of production and marketing of onion in the countries, e.g., Egypt and China, which compete with us in the traditional markets is also needed.

9. **Supply**—India is one of the leading producers of onions in the world. Among the chief onion-producing countries only U.S.A.'s, annual production, estimated at 10.7 lakh tonnes in 1961-62, exceeds that of India. The other countries whose production in 1961-62 exceeded 4 lakh tonnes are Spain, Japan, Egypt and Turkey.

10. The annual production of onions, according to the estimates of the Agricultural Marketing Adviser to the Government of India, ranged between 8,43,000 and 9,45,000 tonnes, during the 2nd Plan years. As against this, our annual exports have ranged from about 40,000 tonnes to about 1 lakh tonnes during this period, or 4 per cent to 11 per cent of production. The per capita consumption of onions in India is estimated at about 2.01 per annum as against the overall world average of 2.48 Kg. and that of 11.04 Kg. in Ceylon. There does not seem to be much scope for a curtailment of domestic consumption. To augment exports, the obvious need seems to be to increase the annual production.

11. Our average annual yield per acre varied from 3580 Kg. to 3764 Kg. during 1956-57 to 1960-61 against the world average of 4717 Kg. in 1960-61. The per acre yield also varies widely in different States, from only about 400 Kg. in Orissa to about 4800 Kg. in Madras and Andhra Pradesh and 6000 Kg. in Gujarat and Maharashtra. There is need for raising the per acre yield of our onion crops through improved agricultural practices. Our aim should be to bring it to the level of advanced countries like U.S.A. where it is 10162 Kg. or more than double that of India. Some of the measures required to step up yields are:

(i) Pilot projects should be started in the chief onion growing States, e.g., Andhra Pradesh, Maharashtra and Gujarat for the production and distribution of improved varieties of onion seeds.

(ii) Package programme for the production of onions in the onion growing districts of Maharashtra, Andhra Pradesh, Madras and Mysore.

We should endeavour to raise production by at least 50,000 tonnes per year, and should increase our exports by about 25,000 tonnes per year. Our export target for the end of the Third Plan should be 2 lakh tonnes and for the end of the Fourth Plan 3,00,000 tonnes. The task of improving yields or increasing the area under onion crop is not difficult in view of its intrinsic economy and of the possibility of growing it alongwith other crops, e.g., sugarcane.

12. **Transport**—The main onion producing and exporting States in India are Maharashtra, Madras, Andhra Pradesh, Gujarat and Mysore. In the Maharashtra and Gujarat States, onions are mostly marketed through the growers' cooperative societies while, in other exporting States, exporters or their agents operate in the assembling markets and arrange to supply the onions to the ports of export.

13. The Growers' Cooperatives experience difficulties from lack of cold storage and refrigerated warehousing at despatch and port ends, as well as from lack of refrigerated transport to the ports and refrigerated space on the ships. Another difficulty faced by them is the non-availability of timely shipping space resulting at times, in heavy losses to the societies

14. U.K. is the biggest importer of onions in the world. She imported about 2,25,000 tonnes of onion during 1961. Here also if we could develop our own refrigerated shipping, we could capture a good slice of the U.K. market for our onions, which are known to be the best in the world for their taste and flavour. We could also enter many other European markets if we could manage to transport this perishable commodity to that continent in a hygienic and healthy condition.

15. **Improvement of Quality**—Lack of control on quality is also a handicap. There was a complaint in 1961 with regard to the infection of onions imported from India into Tanganyika with onion smut (Urocystis cepulse) and, as a result, the Tanganyika Government banned the import of Indian onions and garlic into Tanganyika. Though this ban was later removed, the quantum of exports appears to have been reduced. There have also been complaints with regard to spoilage of onions on arrival at the destination due to improper curing. Such complaints call for the introduction of compulsory grading and pre-shipment inspection of onions before export. Steps are being taken in the direction. The grade specification have been framed under Agmark and a scheme for the compulsory grading of onions for export is being worked out.

16. **Storage**—Onion being a perishable crop, suitable cold storage and warehousing facilities are essential so as to prevent waste in the shape of shrinkage, spoilage and deterioration in quality. Researches carried out at the Central Food Technological Research Institute, Mysore indicate that, with a pre-harvest spray of Maleic Hydrazide (M.H.), a growth inhibitor, on onion crop 8—10 days before harvest, onions can be safely stored for 3-4 months at the ordinary room temperature and for about 8 months in cold storage with 35—35°F as temperature and a relative humidity of 85—90 per cent. The spraying cost works out at Rs. 10 to Rs. 12 per acre or about Re. 1 per 1000 lbs. of onions at an average yield of 15,000 lbs. per acre. This needs to be given publicity through the extension organisation.

17. **Processing**—We should encourage setting up of onion dehydration and powdering plants in areas of good onion production. The Ministry of Food and Agriculture have recently recommended the setting up of a dehydration plant at Nasik. This is a project which appears to have great possibilities. It is likely not only to save a large quantity of onions from spoilage (estimated at 25—50 per cent) during storage but also to help in contracting them by about 90 per cent and thus to reduce the transport costs and also enhance the period of storage without spoilage.

18. Another important benefit will be that we shall be able to explore new markets for our onion powder in the industrially advanced countries where onion powder is commonly used for culinary purposes.

19. A survey conducted by the Ministry of International Trade, has revealed that there is a ready demand for dehydrated onions in Kuwait, Bahrain and West Germany and that in some countries, e.g., Czechoslovakia, Switzerland, Malaya and Singapore, a market for dehydrated onions can be created if sufficient efforts are made to popularise their uses.

CONCLUSIONS AND RECOMMENDATIONS

1. A survey of the traditional markets for Indian onions should be undertaken to assess the scope for the expansion of our exports to those countries. (Para 7).

2. We should try to raise production by at least 50,000 tonnes per year and increase exports by about 25,000 tonnes per year. The export target should be 2,00,000 tonnes by the end of the Third and 3,00,000 tonnes by the end of the Fourth Plan. (Para 11).

3. Efforts should be made to increase the per acre yield of onions by adoption of improved agricultural practices. Some of the measures required to step up yields are:

(i) Production of onion seeds of improved varieties for distribution in the Pilot Project areas.

(ii) Package programme for the production of onions in the onion growing districts of Maharashtra, Andra Pradesh, Madras, Gujarat and Mysore. (Para 11).

4. There is need for the addition of refrigerated ships to the Indian merchant fleet in order to capture the U.K. and other European markets. (Para 14).

5. There is need to introduce compulsory quality control and pre-shipment inspection standards for onion. (Para 15).

6. Facilities for cold storage and refrigerated warehousing are also needed. Researches have indicated that with the spraying of Maleic Hydrazide on onion crop 8—10 days before harvest, onions can be safely stored for 3-4 months in cold storage with 30—35°F as temperature and a relative humidity of 85—90 per cent. The spraying cost is Rs. 10 to 12 per acre or about Re. 1 per 1000 lbs. of onions at an average yield of 15,000 lbs. per acre. This needs to be given publicity through extension Organisation. (Para 16).

7. Setting up of onion dehydration and powdering plants in areas of good onion production should be encouraged. A survey conducted by the Ministry of International Trade has revealed that there is ready demand for dehydrated onions in Kuwait, Bahrain and West Germany, and that, in some countries, e.g., Czechoslovakia, Switzerland, Malasia and Singapore, a market for dehydrated onions can be created if sufficient efforts are made to popularise their use. (Paras 17 and 19).

APPENDIX I

Exports of Onions from India

Years	Quantity (Metric tons)	Value (Rs. in lakhs)	Value per ton (Rs.)	Percentage of previous year
1951-52	56,986	106·69	227	N.R.
1952-53	33,716	112·83	334	+47
1953-54	23,842	99·12	416	+25
1954-55	29,402	77·54	264	—37
1955-56	30,037	77·26	257	—3
1956-57	44,953	135·10	301	+17
1957-58	40,316	138·76	344	+14
1958-59	79,737	208·02	261	—24
1959-60	83,945	215·73	257	—2
1960-61	99,946	212·72	213	—17
1961-62	114,023	291·30	256	+20
1962-63	106,653	264·50	248	—3
1963-64	102,697	290·82	283	+14

Neg.—Negligible.

N.R.—Not Relevant.

APPENDIX II

Exports of Onions from India

Quantity (Metric tons)

Destinations	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Ceylon	25,049	20,127	45,142	55,088	53,849	64,674	63,699	65,342
Singapore . . .	8,117	8,434	13,686	11,752	1,5917	14,552	12,464	11,573
Malaya . . .	9,710	9,323	15,884	13,002	17,408	20751	17,820	18,334
Bahrein Island . .	163	32	1,014	381	1,579	2,606	2,422	1,458
Mauritius	..	141	887	1,492	1,645	1,826	2,308	639
Other countries . .	1,916	2,259	3,034	2,230	9,548	9,614	7,940	5,351
Total .	44,955	40,316	79,737	83,945	99,946	1,14,023	1,66,653	1,02,697

Value (Rs. in lakhs)

Destinations	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Ceylon . . .	63·03	68·04	107·85	145·14	161·40	177·22	162·45	188·73
Singapore . . .	27·38	28·99	39·18	28·55	33·59	35·16	31·38	32·24
Malaya	35·04	35·75	49·86	32·23	38·57	50·56	44·64	50·51
Bahrein Island . . .	0·32	0·08	2·24	0·65	3·14	4·61	4·80	3·80
Mauritius	..	0·39	2·46	4·13	3·26	4·64	4·95	1·55
Other Countries . .	5·33	5·51	6·43	5·03	17·76	19·11	16·28	13·99
Total .	135·10	138·76	208·02	215·73	212·72	291·30	264·50	290·82

Source—Monthly Statistics of the Foreign Trade India.

CHAPTER XIII

RAW JUTE

1. Jute including mesta (an allied fibre but a little inferior in quality) occupies a very valuable place in the agricultural economy of the country. India produces about a third of the world jute crop; climatically and from the point of view of soil and other condition it is second only to Pakistan in being ideally suited for the growth of this crop. Jute is also one of her most important cash crops. Almost the entire production of jute and mesta is used for manufacturing purposes and the jute industry is one of her major industries. It is also one of the foremost earners of foreign exchange, as the bulk of jute goods manufactured in India are exported as would be seen from Appendix I. In volume of jute production, India is next only to Pakistan, amongst the few jute-producing countries of the world.

PRODUCTION AND UTILISATION

2. Undivided India's position amongst exporters of jute goods was prominent. With the division of India, there was a division of jute-growing areas as well and much the larger area and best-producing lands went over to Pakistan. The average annual area and production of jute and mesta in the quinquennium ending 1946-47 used to be 2.48 million acres and 7.2 million bales respectively. After partition the area dropped to about 8 lakh acres and the production to about 21 lakh bales in 1948-49. Consequently, the Indian jute mills experienced a shortage of raw material which had to be made good, to the extent possible, by imports. As an adequate supply of raw jute is an essential condition for the production of jute goods, it is essential that we should go on steadily increasing the production of raw jute of required qualities. Accordingly vigorous efforts were made immediately after Independence to push up production particularly after the decision taken in June 1950 to achieve self-sufficiency. The progress achieved in this direction can be seen from the figures of area and production since 1948-49 given in Appendix II. The area under raw jute and mesta recorded a phenomenal rise during the triennium 1949-50 to 1951-52, when all-out efforts were made to restore the production level to the pre-Independence period. From 834 thousand acres in 1948-49 the area went up to 1.16 million acres during 1949-50 and to nearly 2 million acres in the next two years. The production of jute and mesta in the last year of the First Plan came to a little over 5.3 million bales. During the Second Plan period, the production of jute and mesta displayed sharp fluctuations as would be clear from the following figures:

TABLE I

Production of Jute and Mesta in India

('000 bales of 400 lbs. each)

Year	Production	
	Jute	Mesta
1956-57	4,289	1,470
1957-58	3,983	1,302
1958-59	5,158	1,698
1959-60	4,605	1,118
1960-61	3,982	1,131

3. The average annual production came to 4.7 million bales in the First Plan and 5.7 million bales in the Second Plan. The average annual production during the first three years of the Third Five Year Plan has been over 7.6 million bales.

4. Our yield per acre was 2.56 bales in 1962-63. In Pakistan the yield per acre is nearly 4 bales. On account of the competing demand of other crops, it would be difficult to bring more area under jute. Alongwith the increase in the yield there has to be improvement in quality as well. We should, therefore, concentrate on raising the yield per acre and improving quality through improved techniques, e.g., supply of improved seeds to cultivators, extension in the use of fertilisers, plant protection measures, construction of new and renovation of old retting tanks.

5. The annual supplies of jute and mesta are made up of the opening stock, the domestic production and the imports. As the indigenous production of raw jute falls short of the requirements of the jute industry, India has been importing raw jute from Pakistan to make up the shortfall. But, as would be seen from the following figures, the country's dependence on imports has declined considerably:

TABLE 2

Imports of Raw Jute into India

सत्यमेव जयते

Period (July-June)	Imports (Million bales)
1951-52	1·800
1952-53	1·325
1953-54	1·478
1954-55	1·246
1955-56	1·470
I Plan (Annual average)	1·464
1956-57	·646
1957-58	·695
1958-59	·340
1959-60	·614
1960-61	·413
II Plan (Annual average)	·542
1961-62	·398
1962-63	·288

6. The bulk of the consumption of raw jute and mesta is for manufacturing purposes by the mills, the village consumption being negligible as would be seen from Appendix III.

EXPORTS

7. Commercial exports of raw jute from India have remained banned since 1950-51 except in years of abundant production. During 1958-59, the indigenous production of raw jute (including mesta) suddenly rose to an unprecedented level of about 6.9 million bales and, as a measure of price support, the Government authorised the State Trading Corporation to export limited quantities of raw jute. As a result, 80 thousand bales were exported during this year and 206 thousand bales during 1959-60. Again,

in 1961-62 the production of raw jute (including mesta) rose to the record figure of 8.1 million bales and the Government released in May, 1962, an export quota of 200 thousand bales of raw jute. About sixty-six thousand bales of raw jute were actually exported in 1962-63.

8. It has been urged that certain quantities of raw jute should be permitted to be exported every year as a measure of price support so that the growers are not at the mercy of the manufacturers for the price of their produce. It is urged, on the other hand, that by providing raw jute to the rival manufacturers of jute goods, we make it difficult for the Indian Jute manufacturers to compete in the world markets. The export of manufactured goods in preference to that of raw materials has obvious advantages for the economy of the country. In any case, considering the fact that our production of raw jute is usually not sufficient for our own needs, no appreciable quantity of raw jute is expected to be available for export for a number of years. It is, therefore, unnecessary to draw up a long-range programme for the export of raw jute. The situation will have to be watched from year to year and small quantities allowed for export depending upon our supply position and the need to fulfil the trade agreements with the East European and other countries.

9. However, a reasonable price for raw jute is absolutely essential to encourage growers to continue in the field on this crop and to improve upon yields per acre from year to year to meet the industry's demand. Indeed, it is in the higher interests of the industry itself to ensure that the grower does not get a fair price for his produce and improves it in quality and quantity.

10. **Export Targets**—The targets for the production of jute goods have to be fixed mainly on the basis of the estimates of production of raw jute and the level of internal requirements of jute products. The actual consumption of raw jute and mesta during 1960-61, the base year of the Third Five Year Plan, aggregated to 6.180 million bales, consisting of 4.4 million bales for internal consumption of jute goods and 0.15 million bales for the export of jute goods, 1.6 million bales for village consumption of raw jute and mesta. If the target of exports of jute goods is fixed at 0.9 million tonnes by the end of the Third Plan, the requirements of raw jute and mesta would be as follows:

TABLE 3

Requirements of Raw Jute and Mesta

Purpose	Requirements (Million bales)
(i) Export of jute goods	5·141
(ii) Internal requirements of jute goods	2·285
(iii) Village consumption of raw jute	0·250
Total .	7·676

The production of raw jute and mesta in 1962-63 is estimated at 6.9 million bales. We have, therefore, to step up our level of jute production by about 16 per cent in order to step up our exports of jute goods to 0.9 million tonnes by the end of the Third Plan.

11. It is difficult to make any reliable forecast about the export demand for jute goods during the Fourth Plan period. This question was recently investigated in some detail by a Committee appointed by the Ministry of International Trade under the Chairmanship of Shri N. C. Srivastava, the then Adviser in the Planning Commission. The Committee has come to the conclusion that, on the basis of the current trend in the world consumption of jute goods, there is likely to be an additional demand of jute goods to the extent of 10,41,000 tons (or 10,59,000 metric tons) by 1970 in various parts of the world as shown below:

TABLE 4

Expected Rise in Demand of Jute Goods

Area	Additional requirement of jute goods ('000 metric tons)
Western Europe	233
North America (Canada & USA)	12
Latin America	58
Oceania (including Australia)	8
Near East	41
Far East (excluding India, Japan & Pakistan)	112
Africa	117
Eastern Europe	110
China	368
Total	1,059

12. The Committee has observed that the output of jute manufacturers in Western Europe has been declining and a further reduction of productive capacity may be expected. The capacity of the industry in other countries (except Pakistan) is insufficient for meeting the demand for their respective home markets. The Committee is of the view that there will be increased opportunities for the export of Indian jute goods to both Eastern and Western Europe and to those parts of Africa, Asia and Latin America which do not have facilities for developing jute industries of their own. However, we cannot ignore two important factors; one is the strong and persistent competition from Pakistan with its low price jute economy and the other is the competition from substitutes. Emphasis should be, therefore, laid on improving the yield per acre and on improving the quality so that our manufacturers can compete on favourable terms with others, particularly Pakistan.

13. Internal consumption of jute goods has also been steadily rising. The average annual rate of increase in consumption during the First and Second Plan periods was 15,000 tons (or 15240 metric tons) and 17,600 tons (or 17882 metric tons) respectively. According to the Committee, the internal consumption is expected to increase by about 30,000 tons (or 30480 metric tons) a year in the remainder of the Third Plan reaching the level of 0.4 million metric tons per annum in 1965-66. The Committee considers that in the period of 1966—71 we should plan on the basis of an average annual increase in internal consumption of about 40,640 metric tons raising the consumption level to 0.6 million metric tons in 1970-71.

14. The requirement of raw jute for achieving the export target of jute goods proposed tentatively by the Committee for the last year of the Fourth Plan is given below:

TABLE 5

Estimates of Requirements of Raw Jute by 1970-71

Purpose	Unit	Target of production
Exports	Million metric tons	1·100
Internal consumption	,,	0·600
Total .	,,	1·700
Requirements of Fibre (on the basis of 5·76 bales per ton)	Million bales	9·800

15. Taking into account the requirements for village consumption, the target of jute production at the end of the Fourth Plan on this basis would be nearly 10 million bales. It would be seen that the increase over the target of the Third Five Year Plan is more on account of increase in domestic consumption than on account of requirements of exports. It would be prudent to take a conservative view of the expansion of foreign markets for the reasons already mentioned and the target for the Fourth Five Year Plan should not in our view exceed 9.5 million bales, exports, if need be, being adjusted by curtailing domestic consumption.

CONCLUSIONS AND RECOMMENDATIONS

1. Availability of raw jute and mesta is an essential pre-requisite for the production and export of jute goods. For India to be able to cater to the increased demand for jute goods for export as well as for internal consumption, it is essential to increase the production of raw jute and mesta. We should concentrate our efforts on raising the yield per acre through improved growing techniques, because on account of competing demand of other crops, it would be difficult to bring more area under jute.

(Paras 2 and 4).

2. We should decide every year what quantities of raw jute, if any, should be allowed to be exported depending upon our supply position and the need to fulfil the trade agreements with the East European and other countries.

(Para 8).

3. Considering the potentialities of world demand for jute goods the target for the production of raw jute may be put at 80 lakh bales at the end of the Third and at 100 lakh bales at the end of the Fourth Plan.

(Paras 10 and 15).

APPENDIX I

Production and Exports of Jute Manufactures

(000 metric tons)

Year July—June	Hessian			Sacking			Total*		
	Production	Exports	% of exports to production	Production	Exports	% of exports to production	Production	Exports	% of exports to production
1951-52 .	315	282	90	617	485	79	960	807	84
1952-53 .	354	330	93	519	323	62	906	687	76
1953-54 .	396	394	100	452	388	86	880	824	94
1954-55 .	405	371	92	567	461	81	1,011	876	87
1955-56 .	409	402	98	633	421	67	1,113	873	78
I Plan Annual Average .	376	356	95	558	416	75	974	813	84
1956-57 .	435	429	99	535	399	75	1,041	877	84
1957-58 .	398	390	98	607	393	65	1,073	819	76
1958-59 .	453	459	101	518	334	64	1,058	843	80
1959-60 .	456	461	101	539	349	65	1,091	879	81
1960-61 .	372	389	105	532	313	59	1,022	777	76
II Plan Annual Average .	423	425	101	546	358	66	1,057	839	79
1961-62 .	415	450	108	508	284	56	1,069	806	75
1962-63 .	515	600	117	532	291	55	1,218	971	80

सत्यमेव जयते

*Includes others also.

APPENDIX II

Area Under and Production of Raw Jute and Mesta in India

Base year for Indices
Jute—1950-51
Mesta—1952-53

Area: '000 acres
Production: '000 bales of 400 lbs. each

Year	Jute				Mesta			
	Area	Indices	Production	Indices	Area	Indices	Production	Indices
1948-49 . . .	834	..	2,055	..	..	..	..	..
1949-50 . . .	1,163	..	3,089	..	..	..	..	..
1950-51 . . .	1,411	100	3,283	100	..	..	..	..
1951-52 . . .	1,951	138	4,678	142	..	..	..	..
1952-53 . . .	1,813	128	4,592	140	484	100	682	100
1953-54 . . .	1,228	87	3,091	94	463	95	650	95
1954-55 . . .	1,243	88	2,929	89	438	90	901	132
1955-56 . . .	1,739	123	4,198	128	571	118	1,153	169
Annual Average 1st Plan . .	1,595	113	3,898	119	*489	†101	*846	†132
1956-57 . . .	1,908	135	4,289	131	734	152	1,470	216
1957-58 . . .	1,741	123	3,893	121	766	158	1,302	191
1958-59 . . .	1,811	128	5,158	157	908	188	1,698	249
1959-60 . . .	1,685	119	4,605	140	704	145	1,118	164
1960-61 . . .	1,512	107	3,982	121	689 (P)	142	1,131 (P)	166
Annual Average 2nd Plan . .	1,731	122	4,403	134	760	157	1,344	197
1961-62 . . .	2,280 (P)	162	6,347 (P)	193	951 (F)	197	1,705 (F)	250
1962-63 . . .	2,095 (F)	148	5,367 (F)	163	861 (F)	178	1,522 (F)	223

(P) Partially revised estimate.
(F) Final estimate subject to revision.
* Average of four years.
† Average of three years.

N.B.—Figures for Jute include those of mesta till 1951-52.

APPENDIX III

Consumption of Raw Jute and Mesta in India

(Lakh bales)

Period (July—June)	For export of jute goods	For internal* consumption of jute goods	Estimated Village consumption	Total
1951-52	47·81	9·20	1·00	58·01
1952-53	39·82	10·27	1·00	51·09
1953-54	47·08	7·05	1·00	55·13
1954-55	50·81	8·43	2·10	61·34
1955-56	50·46	11·60	2·30	64·36
1956-57	51·14	11·08	2·10	64·32
1957-58	46·77	11·96	2·08	64·81
1958-59	47·91	13·22	2·32	63·45
1959-60	50·68	15·12	2·00	67·80
1960-61	43·92	16·38	1·50	61·80
1961-62	44·04	16·37	1·50	61·91
1962-63	41·55	16·26	1·25	59·06

* Includes estimates of consumption by non-I.J.M.A. Mills.

Source:—1. Indian Central Jute Committee.
2. Directorate of Economics & Statistics.

CHAPTER XIV

ESSENTIAL OILS

India is gifted with all types of climates, seasons, soils and other essential ecological factors so very necessary to favour the growth of most, if not all, varieties of odoriferous plants of economic value. From the point of view of commercial importance, the following essential oils may be listed—

1. Lemongrass.
2. Sandalwood
3. Palmarosa.
4. Vetiver.
5. Himalayan Cedar wood.
6. Peppermint.
7. Citronella.
8. Geranium.
9. Patchouli.
10. Cinnamon leaf.

Lemongrass, sandalwood and palmarosa oils are largely exported. Compulsory grading of lemongrass oil before export has been in force since 1956 and that of sandalwood and palmarosa oils from 1957 and 1961 respectively. Vetiver, Himalayan cedar wood and peppermint oils have a large export potential. There is scope for producing the other four oils which we are importing at present.

EXPORTS

2. Statistics showing the annual volume of exports of essential oils during 1950-51 to 1963-64 are given in Appendix I. We exported about 900—1400 tonnes of these oils per year during the last three years. The average annual quantum rose from 758 tonnes during the First Plan period to 1316 tonnes during the Second Plan period. Lemongrass oil is the most important of the essential oils exported by us accounting for 72 per cent to 91 per cent of the annual quantum since 1950-51. Sandalwood and palmarosa oils are the other essential oils of export importance. The former constituted 5 per cent to 9 per cent and the latter 1.4 per cent to 2.3 per cent of the exports during the last 3 years. The quantum of exports of lemongrass oil has been rising. It rose from 602 tonnes during the First Plan period, on an average, to 1146 tonnes during the Second. On the other hand, the exports of palmarosa oil have been declining. We exported 61 tonnes per year, on an average during the First Plan, 49 tonnes during the Second Plan and only 19 tonnes each in 1961-62 and 1962-63 and 22 tonnes in 1963-64.

3. Figures showing the export value per tonne of the principal oils are given in Appendix II. The unit value fluctuates sharply from year to year. It varied between Rs. 17,477/- and Rs. 35,771/- during the First

Plan years. Values sagged during the Second Plan period and ruled between Rs. 14,011/- and Rs. 29,884/- only. There was a spurt in the value in 1961-62 when the average was as high as Rs. 42,796/-. They came down to Rs. 30,610/- in 1962-63 and further to Rs. 29,916/- in 1963-64. Sandalwood oil fetches the highest value. In 1963-64, its unit value was nearly double that of palmarosa oil which, in its turn fetched five times as much as that fetched by lemongrass oil.

4. We earned Rs. 282 to Rs. 451 lakhs of foreign exchange from the exports of these oils during the last three years. Due to the lower unit value, the relative contribution of lemongrass oil to our export earnings has ranged between 45 per cent and 62 per cent only of the total earnings from essential oils during the last three years as compared with 85 per cent to 90 per cent of the quantum. On the other hand, sandalwood oil, whose exports accounted for 5 per cent to 9 per cent of the quantum only, brought us 30 per cent to 44 per cent of the earnings. The corresponding figures for palmarosa oil were 1.4 per cent to 2.3 per cent for quantum and 2 per cent to 6 per cent for value.

EXPORT PROMOTION

5. The possibilities of developing the export of these oils and their export targets are discussed below for each of the oils separately).

LEMONGRASS OIL

6. Lemongrass oil is produced from lemongrass which is grown mainly on the south-west coast of India, Kerala being the most important producer of lemongrass. The oil is required mainly as a source of its constituent 'citral' which, in turn, is used in the manufacture of A and B ionones. B ionone forms the basis of the manufacture of synthetic Vitamin A and also a number of perfumes.

7. The world demand for lemongrass oil may be placed at about 1000—1200 tonnes a year. India is meeting almost 80—85 per cent of it. Except for Russia no exports are taking place to the East European countries. There is need to explore these markets. Foreign buyers are fully satisfied with the quality of the oil they are now getting. Compulsory grading of the oil under Agmark prior to its export, in force since 1-1-1956, has helped us to improve the quality of the export oil and to establish a reputation for the commodity in the world markets.

8. During World War II, when the exports of Indian lemongrass oil received a setback due to shipping difficulties, the West Indian lemongrass oil from Gautemala and Haiti gained importance. This led to extensive plantation of lemongrass in many countries in the western hemisphere. U.S.A., which is the principal market for lemongrass oil, obtained the bulk of her requirements from Gautemala and Haiti during the war. Some countries abandoned the cultivation of lemongrass after the war. But in Gautemala, Haiti, Madagascar, Belgium, Congo and Indo-China, the industry not only continued but developed thereafter. Gautemala and Haiti are now the chief competitors of India in this field. The Indian Missions in West Indies should be requested to make a comparative study of the variety of lemongrass grown and of the method of extraction of oil in India and in those countries with a view to enabling us to know what measures need be taken by us to compete effectively with these countries.

9. Synthetic citral is yet another possible competitor but its use is economical only if the price of Indian oil rises beyond a certain point.

10. As has already been stated, the oil is now-a-days used in large quantities for the manufacture of ionones and synthetic Vitamin A. In view of the danger of shrinkage in the overseas demand for our lemongrass oil, due to competition from Gautemala and synthetics these efforts should be stepped up. A beginning has now been made in the indigenous production of these items. Consequently, the internal consumption of lemongrass oil has gone up from 20—25 tonnes per year during 1955-56 to 250 tonnes per year. However, there is no immediate prospect of our exporting the manufactured items, from India. Their indigenous production will, no doubt, reduce the quantum of their imports and thereby save us a certain amount of foreign exchange.

11. A buffer stock scheme under which the State Trading Corporation makes purchases of lemongrass oil in the event of exporters not lifting it is in operation with effect from 1-4-63. According to this, the State Trading Corporation purchases lemongrass oil at the minimum support prices, viz., Rs. 11.00 per kilo ex-factory for oil of 78 per cent citral content ('A' grade) with a premium of rupee one per kilo for oil of 82 per cent citral content (special grade). It will be preferable to give the premium at a progressive rate with the increase in the percentage of citral content instead of giving it at a flat rate.

12. **Export Targets**—The average annual exports of lemongrass oil during the quinquennium ending 1963-64 has been of the order of 1019 tonnes. During 1963-64, exports fell sharply from 1258 tonnes to 798 tonnes. In view of the competition from Gautemala, the production of synthetic citral in U.S.A. and Europe and the growing internal demand of lemongrass oil for the production of ionones, it may not be possible to step up exports of this oil to any marked extent. Efforts should, however, be made to maintain the exports at the level of the last five years, viz., about 1000 tonnes per year.

PALMAROSA OIL

13. The oil is produced from rosha grass. Maharashtra and Madhya Pradesh are important producing areas. Andhra Pradesh (round about Hyderabad) also produces this oil which is a little inferior in quality. In all these places the oil is distilled from wild grass only. There is only one regular large scale plantation of Palmarosa in the country. This is near Dehra Dun in U.P.

14. A scheme for the compulsory quality control on palmarosa oil for purposes of export has been in operation since 29-8-1961. Prior to the introduction of this scheme, certain blends of essential oils (mixtures of palmarosa oil, gingergrass oil and terpeneol) were being exported to Sudan as palmarosa oil under various trade names, such as rosha oil. These consignments inflated the export figures of palmarosa oil. These blended oils are now being shipped to Sudan under the name 'Mahalabia' and 'Suratia' which are trade brands of two manufactures. Thus, it would not be correct to compare the pre-1961 export figures with the post-1961 figures. Sudan is now buying pure palmarosa oil as well as blended oils, though her requirements of pure oil seem to be rather limited. In 1961 there was considerable demand for pure palmarosa oil both from abroad as well as from within the country and the total production of the oil was insufficient to meet the demand.

15. Palmarosa oil is also produced in Java and Madagascar and is said to be superior in perfumery value, mainly because of the scientific methods of cultivation and distillation adopted in these countries. It is for this reason that foreign buyers use Java and Madagascar oils in cosmetics and perfumes, while Indian oil is used mainly in soaps and for extracting 'geraniol'—the main constituent of the oil. Citronella oil is a cheaper substitute for palmarosa oil for the extraction of geraniol. However, geraniol from palmarosa oil is considered superior to that from citronella oil. A comparative study of the quality of oil manufactured in Java and Madagascar should be made with a view to making improvements in our methods of cultivation and distillation etc.

16. No reliable estimates of the production of this oil in the country are available. Most of the estimates of production have been based mainly on the figures of export which, due to reasons already stated, are not comparable over years. However, using these figures it is estimated that about 80—90 tonnes of palmarosa oil are produced annually in India. The production has been going down recently mainly because of the crash in prices in 1958, when the American trade announced that they had synthesised geraniol in laboratory. This news brought the prices of palmarosa oil to about Rs. 20 per kg. and many distillers stopped producing the oil. There was widespread adulteration of the oil also. These conditions continued in 1959 as well. The prices improved in 1960 but the exports were quite low in 1960-61 because there were very little purchases by Sudan, one of the most important buyers. They had learnt that the oil shipped from India was not pure but a blend of different oils. They were, therefore, hesitant to let such oil be imported into Sudan.

17. Palmarosa oil can be a very important source of foreign exchange provided the cultivation of palmarosa grass is taken up on a planned basis in the forest areas. Such cultivation would prevent hybridisation of the plant and ensure that a pure strain of grass is used for distillation. Such a measure would go a long way in stepping up the exports of this commodity and also in improving the quality of perfumery material (based on palmarosa oil) manufactured in the country for use in soap, cosmetics, etc. Along with the scientific cultivation of palmarosa grass, steps should also be taken to introduce better methods of distillation so that the perfumery value of the oil is improved. The oil produced from cultivated grass in U.P. is as good as Java or Madagascar oil and there is no reason why India should not be able to step up its production of such oil.

18. The demand for this oil from the soap and cosmetics industries in the country has been on the increase because of the high cost of sandalwood oil. If the grass is scientifically cultivated and if the distillation process is improved, it would not be difficult to market about 40 tonnes of this oil by the end of the Third Five Year Plan and 75 tonnes by the end of the Fourth Five Year Plan.

19. **Export Targets**—The average annual exports of palmarosa oil during the quinquennium ending 1963-64 have been of the order of 27 tonnes. The maximum quantity exported since 1949-50 was 79 tonnes (in 1955-56), but this was an exceptional year. A target of 40 tonnes per annum for the export of palmarosa oil till the end of the Third Five Year Plan seems to be reasonable. The target of export at the end of the Fourth Five Year Plan may be fixed at 55 tonnes, providing for a progressive increase of 3 tonnes per year.

SANDALWOOD OIL

20. The sandal tree, the source of sandalwood oil, is found mainly in the forests of Mysore and certain parts of Madras and Kerala in Peninsular India. Normally, 2 to 3 thousand tonnes of dry roots and billets of sandalwood are extracted from the forests every year. The yield of oil is about 5 per cent. The industry is fairly well-organised and the Indian oil is known all over the world.

21. Overseas consumers have no complaints about the quality of agmarked oil they started receiving since 1-2-1957 when the scheme for the compulsory grading of the oil under Agmark was enforced. There is practically no keen competitor for India Sandalwood oil in the world trade. However, since 1961 M/s Givaudan of America started marketing a product named 'Sandela GD' which, they claim, possesses the same perfumery value as the Indian oil. It is sold at half the price of the genuine sandalwood oil. The Indian trade apprehends that this product may prove detrimental to its interests, particularly in the West Asian countries, Sudan etc. In the circumstances, it is desirable to maintain the price of sandalwood oil within reasonable limits so that buyers may continue to buy the natural product.

22. The quantity of sandalwood released every year in the country is between two to three thousand tonnes. The decision to supply only this limited quantity of sandalwood was taken by the respective State Governments to provide for a steady supply of oil from India for years to come. Side by side with deforestation, planned afforestation also was undertaken in the producing States.

23. The industry has attained an optimum stage and an expansion of export may tell adversely on internal supplies. Only trees between 50 to 60 years are suitable for distillation as they contain more essential oil. Under the existing conditions, there is no possibility of effecting an increase in the quantity of sandalwood released.

24. The Mysore Government Sandalwood Oil Factory, Mysore is the largest single unit distilling sandalwood oil in the country and its annual production is nearly half the total indigenous production. The price of sandalwood oil is also determined mainly by the price fixed by this factory although instances of under-selling by private distillers are not infrequent. The Mysore Government holds monopolistic rights for the exploitation of sandal trees growing in that State. With the reorganisation of the States, certain additional forest areas growing sandal trees have gone over to this State with the result that the wood available to private distillers has considerably decreased and they are finding it difficult to maintain supplies of oil. The sandal tree takes about 50 years to mature. Therefore, for any scheme to increase the production of sandal trees, we would have to plan in advance. Concerted efforts should, therefore, be made to increase our wealth of sandal trees by planting more trees on a systematic basis and also by fighting the menace of the spike disease.

25. Imports of sandalwood oil into U.S.A. are subjected to an import duty of 10 per cent *ad valorem*. There is no such import duty on the import of sandalwood. This led to the export of some quantities of sandalwood (worth Rs. 13 lakhs in 1961-62) to U.S.A. where it was distilled. It would be desirable to request the U.S. Government to abolish the duty on oil so as to make it at par with sandalwood.

26. About 33 per cent of the production of sandalwood oil is consumed within the country in the manufacture of soaps, cosmetics and *attars*. *Attars* are being exported in considerable quantities from the country, though separate statistics in this respect are not available. One of the difficulties that the *attar* industry in the country is facing is regarding the availability of good quality sandalwood oil. There have been requests for the extension of the compulsory quality control scheme to the internal trade as well. For want of suitable legislation, it has not been possible to do so. If this is done and good quality sandalwood oil is made available to the *attar* manufacturers at a reasonable price, not only would it be possible to improve the quality of *attars* manufactured in the country but also to earn more foreign exchange by exporting them. This point needs to be considered.

27. **Export Targets**—The average annual exports of sandalwood oil during the quinquennium ending 1963-65 have been of the order of 86 tonnes. The maximum quantity exported since 1949-50 was 103 tonnes (in 1950-51 and 1957-58). In view of the expanding local demand, the scope for the increase in the export of this oil is limited. A target of 100 tonnes per annum for the export of sandalwood oil till the end of the Third Five Year Plan seems to be reasonable. The target of export at the end of the Fourth Five Year Plan may be fixed at 115 tonnes, providing for a progressive increase of 3 tonnes per year.

Essential oils which have considerable export potential

28. In addition to the three major essential oils, namely, lemongrass, sandalwood and palmarosa oils, there are some other oils which have considerable export potential, provided our resources are fully and scientifically exploited. These are briefly below:—

VETIVER OIL

29. India is producing two types of vetiver oil, one being the North Indian variety produced from wild vetiver roots and the other the South Indian variety produced from cultivated vetiver roots. The former type is commonly known as *khus* oil and is mainly used in the perfumery industry within the country. Bharatpur (Rajasthan) is the biggest centre of *khus* oil industry in North India. The total production of *khus* oil is estimated to be about 2½ tonnes per annum. Cultivation of vetiver started in the South (Malabar coast) in the year 1946 and has expanded manifold in the past few years. The present production is estimated at 10 tonnes per annum. This oil is priced at Rs. 90 to Rs. 130 per kg. against the North Indian variety which sells at Rs. 240—250 per kg. From the point of view of exports, vetiver oil produced in the South is more important as it is akin to the Java vetiver oil for which there is a considerable world demand. The prices of the South Indian oil and Java oils are comparable. The vetiver oil produced in Malabar can, therefore, find a good world market provided India can ensure supplies of good quality oil at a reasonable price.

30. In order to ensure the quality of the oil, it would be necessary to pre-test it before shipment. In fact, when India started exporting some of these oils, the foreign buyers insisted upon analysis reports by a recognised agency. The exporters, thereupon, approached the Directorate of Marketing and Inspection for such certificates and they have been giving these certificates after carrying out extensive chemical tests in their Cochin Laboratory. At present, almost all consignments of oil of vetiver exported

from India carry Agricultural Marketing Adviser's certificate of testing. A proposal to bring this oil under quality control is under the consideration of the Ministry of Food and Agriculture.

31. Exports of vetiver oil have varied between 1—4 tonnes since 1958-59. There was a fall in the exports in 1961-62, when they stood at about 2 tonnes. The reason was the decrease in production mainly due to heavy floods damaging many plantations in Malabar during the year. Purchases by China, France and Russia also decreased during this year. During 1962-63, the exports improved to about 3 metric tons. But during 1963-64, exports dropped to 550 kg.

32. There is scope for improving the quality of oil produced in Malabar. At present, the roots are distilled in crude stills, sometimes improvised from oil G.I. drums, and the method of distillation is also not standardised. This imparts a very dark colour to the oil, which is a serious drawback for its use in perfumery. It would be necessary to improve the methods of distillation in order to step up exports.

33. There is considerable demand for vetiver oil in the country particularly by the soap industry. Because of this, foreign buyers are complaining that they cannot depend on Indian supplies even though the present prices of Indian vetiver oil are quite competitive. Production target for vetiver oil may be fixed at 12 tonnes by the end of the Third Five Year Plan and it should be stepped up to 18 tonnes by the end of the Fourth Plan.

34. **Export Targets**—The annual exports of vetiver oil from India since 1959-60 have been of the order of 1 to 4 tonnes. Prior to this, exports were negligible. A target of 5 tonnes per annum to be achieved by the end of the Third Five Year Plan would be reasonable. The target of export at the end of Fourth Five Year Plan may be fixed at 10 tonnes, providing for a progressive increase of 1 tonne per annum.

HIMALAYAN CEDARWOOD OIL

35. Deodar Cedar, a native of Himalayan mountain ranges, yields an essential oil known as Oil of Himalayan Cedarwood with a pleasant balsamic odour. It is only recently that this very important source of the oil has been exploited in the Jammu and Kashmir State through their Drug Research Laboratory at Srinagar. The present production of the oil is in the neighbourhood of 5 to 6 tonnes per year. The following table gives an idea of the imports during the last six years:

TABLE 1

Imports of Himalayan Cedarwood Oil

Year	Quantity (in tonnes)	Value (000 Rs.)
1958-59	5	39
1959-60	13	91
1960-61	1	11
1961-62	4	40
1962-63	14	149
1963-64	1	6

The so-called oil of cedarwood which we import is not produced from Deodar Cedar trees but from the wood of a different species of trees, viz., *Juniperus Virginiana.*

36. The oil of Himalayan Cedarwood, being produced in the State of Jammu and Kashmir, has been found to be of very good quality and experts to whom samples of the oil were sent abroad are of the opinion that this oil would find a good market in foreign countries. The oil is used both in the perfumery industry as well as in laboratories for microscopic work. The oil has thus a great export potential which must be exploited. It would, however, be necessary to maintain the quality of the oil and for this purpose its grading under Agmark must be made compulsory before export.

37. **Export Targets**—Himalayan cedarwood oil may not be able to replace fully the imported oil as the latter has a different perfumery note, but certainly it can meet 50 per cent of the demand. Working on this basis, the requirements of the oil in the country would be 6 to 7 tonnes per annum. This would cut down our imports by half. In addition to this, we may keep an export target of 10 tonnes for this oil by the end of the Fourth Five Year Plan period. The production target in the Fourth Five Year Plan period may, therefore, be of the order of 18 tonnes per annum.

PEPPERMINT OIL

38. Oil of Peppermint is required for pharmaceutical use as well as for the production of menthol. For the former, the plant material is *Mentha piperita,* while for the latter it is *Mentha arvensis.* About 1 tonne of oil is produced every year from *Mentha arvensis* in the farms of the Drug Research Laboratory at Srinagar. Imports of peppermint oil during the last four years were as under:—

TABLE 2

Imports of Peppermint Oil

Year	Quantity (tonnes)	Value (000 Rs.)
1960-61	25	1,043
1961-62	24	974
1962-63	33	1,160
1963-64	55	1,295

सत्यमेव जयते

39. It is estimated that about 100 tonnes of peppermint oil will be required at the end of the Third Five Year Plan for the manufacture of menthol. If, therefore, large-scale cultivation and production of peppermint oil from *Mentha arvensis* are taken in hand, it would be possible not only to save foreign exchange to the tune of .35 lakhs of rupees per year by the end of the Third Five Year Plan period but also to earn additional foreign exchange through the export of menthol and other pharmaceutical preparations. About 10,000 acres of land will be required for the cultivation of *Mentha arvensis* to meet the above requirement. Some plant material is already available in the country and could be utilised for further propagation. The Central Indian Medicinal Plants Organisation should be asked to give a very high priority to this work in view of it's importance from the point of view of export earnings. Some commercial firms also may be interested in large scale cultivation and exploitation of *Mentha arvensis.*

Essential Oils which are Imported in Large Quantities but which could be Produced in the Country

40. Indian pharmaceutical, soap, cosmetics and perfumery industries have been making rapid progress in recent years. India is spending considerable amount of foreign exchange in importing some essential oils for these industries. Some of the plants from which those essential oils are derived are being grown or can be cultivated in the country. Thus, it is possible to save a fairly large amount of foreign exchange which is at present being spent on their import. In course of time, it may even be possible to export some of these oils. A brief resume of some of the important essential oils in this category is given below.

CITRONELLA OIL

41. Imports of Citronella oil during the last four years were as under:—

TABLE 3

Imports of Citronella Oil

Year	Quantity (in tonnes)	Value (000 Rs.)
1960-61	151	1,779
1961-62	139	1,858
1962-63	109	1,333
1963-64	70	996

42. The oil is derived from the plant *Cymbopogon nardus* Rendle and *Cymbopogon Winterianus* Jowitt (fam. Gramineae). The present demand of the oil in the country is about 140—150 tonnes for the manufacture of soaps, sprays, disinfectants, polishes etc. The demand is likely to increase by the end of the Third Five Year Plan to about 500 tonnes per annum. There is no production of oil of citronella in the country at present except for some very small quantity in the Lemongrass Research Station at Odakali, which is of an inferior quality. Cultivation of citronella grass (Java type) is being done on a small scale in the National Botanical Gardens, Lucknow. The grass has also begun to be cultivated in the Cinchona Department, Ootacamund. Citronella grass can easily be cultivated in areas suited for the cultivation of lemongrass. However, it may not be advisable to undertake cultivation of citronella in the vicinity of lemongrass, palmarosa or gingergrass plantations because this may, in course of time, give rise to a mixture of those aromatic grasses which will be very difficult to set right. It would, therefore, be worthwhile to demarcate suitable areas in the Madras State, preferably on Nilgiris, under citronella, where lemongrass is not grown at present but where lemongrass and palmarosa have been tried and found to grow well. Concerted efforts should be made in this regard with adequate quality control measures at different stages of production so that good quality oil could be produced and marketed. Self-sufficiency in citronella oil will save the country foreign exchange to the tune of Rs. 60 lakhs every year by the end of the Third Five Year Plan period according to present estimates.

GERANIUM OIL

43. The oil is produced from the plant *Pelangonium* spp. (fam. Geraneaceae). The present production of Geranium oil in the country is in the vicinity of 1 tonne per annum. Important areas of production are Shevroy Hills, Nilgiris and Annamalaise. It should be possible to extend the cultivation of the plant in Wynad, Devicolom (Kerala) and Kashmir Valley as well. The oil is used in soaps and perfumes and also for flavouring purposes. Imports of the oil during the last four years were as under:--

TABLE 4

Imports of Geranium Oil

Year	Quantity (in tonnes)	Value (000 Rs.)
1960-61	10	1,516
1961-62	17	2,015
1962-63	9	1,000
1963-64	9	873

44. The present demand of the oil in the country is estimated at 17 to 18 tonnes per annum and is likely to increase to about 20 tonnes by the end of the Third Five Year Plan. It is, therefore, very essential that the production of the oil should be given high priority in the country so that we could meet the internal demand and save foreign exchange. Scientific cultivation of geranium would ensure an yield of 10 kg. of oil per acre as against the present yield of 4 to 5 kg. Cultivation of geranium at an altitude of 4,000 feet has been found quite economical, although the oil produced from geranium, grown at lower altitudes (near Poona), has also been found to be of equally good quality.

PATCHOULI OIL

45. The oil is derived from the leaves of the plant *Pogostemon Cablin* Benth (Fam. Labiatae) and is an important raw material in the perfumery industry. The present production of the oil in the country is only about 100 kg. from the Madras Government Cinchona Plantation at Annamalaise and Nilgiris. The imports of Patchouli oil during the last four years were as under:—

TABLE 5

Imports of Patchouli Oil

Year	Quantity (in tonnes)	Value (000 Rs.)
1960-61	10	460
1961-62	16	631
1962-63	22	552
1963-64	8	195

46. The present demand is about 12 to 14 tonnes. The indigenous production is insufficient to meet the demand. The demand is likely to increase to about 20 tonnes by the end of the Third Five Year Plan.

47. It is not necessary to cultivate Patchouli independently on a plantation basis as it can be grown as an under-crop in various fruit, coconut and arecanut gardens, wherever there are partial shade and irrigation facilities. The area under coconuts alone is estimated at 15 lakh acres and, assuming that 10 per cent of this area is planted with Patchouli, the yield of oil could be about 1,300 tonnes. (The plant matures in six months' time only). If this work is taken up seriously, there is no reason why India should not only meet her requirements but also enter the world market and export the oil.

CINNAMON LEAF OIL

48. The present production of Cinnamon leaf oil is reported to be near about 2 tonnes per annum. The plant (*cinnamomum zeylanicum*) grows wild in Malabar, S. Canara and adjoining districts of Mysore State. It is cultivated in N. Malabar. Most of the distillation of Cinnamon leaves is concentrated in the Mangalore area. Our requirements of Cinnamon leaf oil are in the neighbourhood of 2 to 6 tonnes, as will be seen from the import figures given below:—

TABLE 6

Imports of Cinnamon Leaf Oil

Year	Quantity (tonnes)	Value (000 Rs.)
1960-61	6	96
1961-62	2	38
1962-63	3	50
1963-64	3	39

Requirements of this oil are likely to increase to 12—15 tonnes by the end of the Third Five Year Plan. The oil is used largely in flavouring and pharmaceutical industries as well as in perfumery.

49. The present area under *C. Zeylanicum* has been estimated at about 300 acres. It is reported that, if the plantation is fully exploited it may be possible to meet India's requirements from this area itself. An additional area of 100 acres under *C. Zeylanicum* would make available sufficient oil for the manufacture of vanillion and related compounds.

50. From the above it will appear that the main problem in the production of the requisite quantity of Cinnamon Leaf Oil is organisational. The concerned State Governments and organisations like C.I.M.P.O. should be able to undertake this work fairly quickly and save foreign exchange to the tune of Rs. 2 to 2.5 lakhs every year by the end of the Third Five Year Plan period. Strict quality control should be enforced to ensure that only good quality pure oil is marketed in the country.

51. Oil-Yielding Plants - In additions to essential oils discussed above, there are some oil-yeilding plants which can profitably be developed. The Central India Mrdical Plants Organisation has drawn up a programme for the development of certain oil-yielding plants, and have worked out the requirements of such oils, approximate area required and places suitable for cultivation. These are indicated below:—

TABLE 8

Particulars of the Schemes for Development of Certain Oil Yielding Plants

Name of Plant (1)	Quantity required (kg.) (2)	Approximate area required for cultivation (Acres). (3)	Places suitable for cultivation (4)
1. Dill sood	10,000	1,235	Punjab, Gujarat, U. P. and M.P.
2. Eucalyptus citriodora oil	50,000	1,235	Practically throughout India below an altitude of 1,000 metre.
3. Linaloe	10,000	494	Mysore
4. Lavendor	20,000	4,448	Kashmir, Madras and U.P.
5. Citrus peel oils:			
(i) Berganot	4,000	247	M.P., Assam, Coorg and Maharashtra.
(ii) Lemon	10,000	1,947	
(iii) Lime	1,000	..	Additional cultivation is not necessary.
(iv) Orange	15,000		
6. Mentha Piperita	10,000	618	Maharashtra, U. P., J. & K. and Punjab.
7. Pettitgrain oil	5,000	494	U.P., Madras and Mysore.
8. Rosemary	25,000	4,942	U.P. and Madras
Ylang Ylang oil	2,000	247	Kerala and U. P.

52. The C.I.M.P.O. should be asked to give very high priority to the above scheme as this is important from the point of view of export earnings. It should also conduct research on the agricultural aspects of the production of lemongrass, sandalwood, resha grass and several other types of grass, plants and berries and on the technological aspects of extraction and recovery of oils of economic value.

CONCLUSIONS AND RECOMMENDATIONS

1. The Indian Missions in West Indies should be requested to make a comparative study of the variety of lemongrass grown and of the method of extraction of oil in India and in those countries with a view to enabling us to know what measures need to be taken by us to compete effectively with these countries.

(Para 8).

2. Efforts for the manufacture of ionones and synthetic Vitamin A from lemongrass oil should be stepped up as there is danger of shrinkage in the exports of oil itself due to competition from Gautemala and synthetics.

(Para 10).

3. The cultivation of palmarosa grass in the forest areas should be taken up on a planned basis. Such cultivation would prevent hybridisation of the plant and would ensure that a pure strain of grass is used for distillation. Steps should also be taken to introduce better methods of distillation so that the perfumery value of the oil is not impaired.

(Para 17).

4. Concerted efforts should be made to increase our wealth of sandal trees by planting more trees on a systematic basis and also by fighting the menace of the spike disease.

(Para 24).

5. The target of production of vetiver oil may be fixed at 12 tonnes by the end of the Third Five Year Plan and 18 tonnes by the end of the Fourth Five Year Plan.

(Para 33).

6. The target of production of cedarwood oil may be fixed at 18 tonnes per annum during the Fourth Five Year Plan period.

(Para 37).

7. Large-scale cultivation of *Mentha arvensis,* the source of peppermint oil, should be taken up. The Central Indian Medicinal Plants Organisation should be asked to give a very high priority to this work.

(Para 39).

8. The cultivation of citronella in the vicinity of lemongrass, Palmarosa or ginger grass plantations should be discouraged because this may give rise to the mixture of these aromatic grasses. It would be desirable to demarcate suitable areas in the Madras State, preferably on the Nilgiris, under citronella where lemongrass and palmarosa have been tried and found to grow well.

(Para 42).

9. The cultivation of patchouli, the source of patchouli oil, as an under-crop should be encouraged.

(Para 47).

10. There is need to introduce scientific cultivation of geranium so that we get a better yield of oil.

(Para 44).

11. The cultivation of *Cinnamonum Zeylanicum,* the source of cinnamon leaf oil, should be developed. The Central Indian Medicinal Plants Organisation and the concerned State Governments should be asked to look into this.

(Para 50).

12. The Central India Medicinal Plants Organisation has drawn up a programme for the development of certain oil-yielding plants like dill seed, eucalyptus. They should be asked to give a very high priority to these schemes. It should also conduct research on the agricultural aspects of the production of lemongrass, sandalwood, rosha grass and several other types of grass, plants and berries and on the technological aspects of extraction and recovery of oils of economic value.

(Para 52).

13. About 33 per cent of the total production of sandalwood oil is consumed within the country in the manufacture of soaps, cosmetics and *attars. Attars* are being exported in considerable quantities from the country. One of the difficulties that the *attar* industry in the country is

facing is regarding the availability of good quality sandalwool oil. There have been requests for quality control on the internal trade of this oil so that not only the quality of *attars* is improved but foreign exchange is earned by exporting them. This point needs to be considered.

(Para 26).

14. Himalayan wood oil has good export prospects. It is, however, desirable to take steps for maintaining the quality of this oil. Its grading under Agmark should be made compulsory before export. In fact, quality control measures would be conducive to the export promotion of all the essential oils.

(Para 36).

15. Efforts should be made to explore markets for lemongrass oil in the East European countries.

(Para 7).

16. According to the current scheme, the State Trading Corporation purchases lemongrass oil at the minimum support prices, viz. Rs. 11.00 per kilo ex-factory for oil of 78 per cent citral content with a premium of rupee one per kilo for oil of 82 per cent citral content. The premium should be given at a progressive rate with the increase in the percentage of citral content instead of giving it at a flat rate.

(Para 11).

17. Efforts should be made to maintain the price of sandalwood oil within a reasonable limit so that buyers may continue to buy the natural product and are not led away to go in for imitations like 'Sandela GD' etc.

(Para 21).

18. Imports of sandalwood oil into U.S.A. are subjected to an import duty of 10 per cent ad valorem. The U.S. Government should be requested to abolish the duty on this oil so as to make it at par with sandalwood oil.

(Para 25).

सत्यमेव जयते

19. There is scope for improving the quality of vetiver oil produced in Malabar. At present the roots are distilled in crude stills—sometimes improvised from oil G.I. drums—and the method of distillation is not standardised. This imparts a very dark colour to the oil which is a serious drawback for its use in perfumery. Effects should, therefore, be made to improve the methods of distillation.

(Para 32).

20. A comparative study of the quality of palmarosa oil manufactured in Java and Madagascar should be made with a view to making improvements in our methods of cultivation and distillation.

(Para 15).

21. The following export targets per annum are suggested for different essential oils: —

Essential oils	End of III Plan	End of IV Plan (metric tons)	Para No.
Lemongrass	1,000	1,000	12
Sandalwood	100	115	27
Palmarosa	40	55	19
Vetiver	5	10	34
Cedarwood	..	10	37

APPENDIX I

Quantum of Exports of Essential Oils from India

Metric tons

Year	Lemon-grass oil	Palmarosa oil	Sandal-wood oil	Other sorts	Total
1950-51	518	76	103	22	719
1951-52	497	47	32	13	589
1952-53	374	65	682	20	521
1953-54	559	44	75	47	725
1954-55	758	68	91	16	933
1955-56	822	79	93	30	1,024
Average	602	61	71	25	758
1956-57	991	76	89	33	1,189
1957-58	1,376	64	103	27	1,570
1958-59	1,231	31	77	8	1,347
1959-60	936	53	88	22	1,099
1960-61	1,194	21	98	62	1,375
Average	1,146	49	91	30	1,316
1961-62	910	19	92	33	1,054
1962-63	1,258	19	72	45	1,394
1963-64	798	22	81	40	941

APPENDIX II

Export Value per tonne of Important Essential Oils

(Rs.)

Year	Lemon-grass Oil	Palma-rosa Oil	Sandal-wood Oil	Other sorts	Total
1949-50	13,022	41,172	74,406	9,571	23,669
1950-51	25,606	51,961	71,184	21,182	34,786
1951-52	29,980	59,065	101,687	15,231	35,771
1952-53	10,473	32,062	81,210	10,550	21,587
1953-54	9,639	29,705	76,440	5,170	17,477
1954-55	17,502	41,220	79,352	8,733	25,104
1955-56	16,349	43,646	109,978	5,500	26,641
1956-57	14,521	35,803	103,146	9,303	22,370
1957-58	10,741	23,844	110,485	15,185	17,895
1958-59	7,807	25,226	106,740	33,750	14,011
1959-60	11,869	26,623	122,250	29,500	21,771
1960-61	17,454	40,429	177,633	31,619	29,884
1961-62	25,937	57,158	210,011	32,265	42,796
1962-63	21,197	80,895	178,527	35,867	30,610
1963-64	15,931	82,091	151,728	33,550	29,916

CHAPTER XV

MEAT AND ITS BYE-PRODUCTS

1. The species of animals generally slaughtered for meat purposes in India are buffaloes, sheep, goats and pigs. The slaughter of cows and calves has been banned completely in all States except Andhra Pradesh, West Bengal and Madras where the ban is partial and Kerala where there is no ban. There is a partial ban on the slaughter of useful cattle and baffaloes in majority of the States. Horns, hoofs, intestines, fat, blood, bones, meat and offals and glands are the important bye-products of the meat industry.

MEAT AND MEAT PRODUCTS

EXPORTS

2. We exported about 75,000 metric tons of meat and meat products annually during the years 1960-61 to 1962-63, comprising mostly meat products. During 1963-64, they declined to 65,000 tonnes. Only about 7 per cent to 11 per cent of the value was contributed by meat. These exports fetched us Rs. 325 lakhs per year, on an average, during the last 3 years. The salient features of our export trade in these commodities are described below separately for meat and its bye-products.

3. **Meat**—Statistics showing the quantity and value of exports of various kinds of meat exported by India to different countries during the years 1960-61, 1961-62, 1962-63 and 1963-64 are given in Appendices I and II.

4. The quantum of meat exports came down from 1,119 metric tons in 1960-61 to 707 metric tons in 1961-62. It recovered a little in 1962-63, but again received a set-back in 1963-64. The value of meat exports also fell sharply in 1961-62 but the rise in value in 1962-63 was proportionately much greater than that in quantum, due to a rise in unit value, with the result that the total value exceeded that in 1960-61. During 1963-64, the value of meat exports came down due to a decline in the quantum.

5. The relative importance of the countries, which are our principal buyers of meat for the triennium ending 1962-63 is brought out by figures given in Appendix III. U.S.A. is the most important buyer both in respect of quantity and of value accounting, on an average, for 40 per cent of the total quantity and 51 per cent of the total value of exports during these years. The unit value of meat purchased by this country is also higher than of that purchased by others. Bahrein Islands and Trucial Oman come next in importance accounting for 14 per cent and 13 per cent of the quantum and about 7 per cent and 10 per cent of the value respectively. The unit value of meat imported by Trucial Oman is about 50 per cent higher than that of meat imported by Bahrein Islands. Ceylon accounts for 8.6 per cent of the quantity and 6.8 per cent of the value. France, while buying only 6.3 per cent of our meat, contributes 13 per cent of the value which is next only to U.S.A., due to the high unit values obtained from France.

6. Our exports to some countries went up in 1961-62. The over-all decline was due to a sharp fall in our exports to Trucial Oman, Ceylon and U.S.A., our largest buyers. No exports were made to Hongkong in 1961-62 and 1962-63. In 1962-63, we almost recovered our position in U.S.A. Our exports to Ceylon also improved but the position worsened in the case of Trucial Oman. Improvement was also registered in our exports to Bahrein Islands and France. The value of our meat exports to U.S.A. as well as Ceylon declined in 1963-64.

7. **Meat Products**—Statistics showing the quantity and value of various meat products exported by India to different countries during the years 1960-61 to 1963-64, are given in Appendices IV and V. The quantum of exports of meat products rose from 73,543 metric tons in 1960-61 to 74,761 metric tons in 1961-62, showing a rise of about 2 per cent. The value rose from Rs. 292.16 lakhs in 1960-61 to Rs. 321.95 lakhs in 1961-62, or by about 10 per cent. During 1962-63, however, there was a slight fall which brought down the exports to 73,848 metric tons. The value dropped to Rs. 312.33 lakhs in 1962-63 which was lower by about 3 per cent compared to the previous year. During 1963-64, the exports came down to 64,709 metric tons and their value dropped to Rs. 246.08 lakhs which was lower by about 21 per cent compared to the previous year.

8. The relative importance of the countries which are our principal buyers of meat products is brought out for the triennium ending 1962-63 by figures in Appendix VI. U.K. is the most important buyer both in respect of quantity and value accounting, on an average, for about 32 per cent of the off-take and about 31 per cent of the value of these exports per year during these years. Belgium, U.S.A. and France come next in importance accounting for about 21 per cent, 11 per cent and 11 per cent respectively of both quantum and value. The other important countries importing Indian meat products are Netherlands, Japan and West Germany, accounting for about 8 per cent, 7 per cent and 6 per cent of the quantum and about the same of the value.

9. It is observed that the relative shares of importing countries are usually the same for both quantity and value. Therefore, from the value point of view there is little to choose between different markets.

10. Our exports of meat products to some countries dropped during 1961-62. But, on the whole, there was a rise due to a market improvement in our exports to West Germany, Netherlands, Belgium and France. In 1962-63 as well as in 1963-64 the total exports registered a decline.

EXPORT EXPANSION

MEAT

11. **Demand**—There is a great demand for frozen meat in foreign countries. But due to the prevalence of diseases like rinderpest and foot and mouth, meat from India is not acceptable to some of the Western Countries. However, there appears to be a good market for our frozen meat in the Middle East and the Far Eastern countries mainly because the method of slaughtering adopted in India is acceptable to those countries and because our prices are attractive.

12. But the experience of some of the importers of beef in Egypt, Hong Kong, etc. is reported to have been unhappy. There have been a number of complaints about the quality of meat and the conditions under which it was exported. It is reported to have deteriorated in transit

due to lack of refrigeration facilities and unsatisfactory storage conditions.

13. Most of the importing countries exempt canned meat products from the operation of their meat inspection regulations, provided the cans have been sterilized and hermetically sealed. Such canned meat is acceptable to United States. The U.K. Importation of Carcass and Animal Products Order, 1954, also admits unconditionally certain products, including meat and canned meat, cooked throughout and supervised continuously from the time of slaughtering to that of packing. These conditions do not exist in India and, therefore, Indian meat does not find a market in U.K.

14. **Supply**—According to the data published in 1959 by the Directorate of Marketing and Inspection, the quantity of meat produced annually from cattle slaughtered in slaughter-houses in the country is as under:—

TABLE 1

Production of Various Kinds of Meat

Kind	Production Million lbs.	% of Total
Beef (cattle)	214·6	19·68
Buffalo flesh	165·7	15·20
Mutton (Sheep)	251·2	23·04
Goat Meat	350·0	32·10
Pork etc.	52·9	4·85
Poultry	56·0	5·13
Total	1,090·4	100·00

The actual production is larger as private slaughtering is also done extensively.

15. **Bovine Meat**—Due to the prevailing sentiment against the slaughter of cattle, particularly cows, the scope for large-scale production of beef for purposes of export does not exist. But some cows are slaughtered in certain parts of the country to feed certain sections of the population. Such slaughtering as takes place should be done under hygienic conditions, if not for the export of meat, at least for the sake of valuable bye-products which could be profitably exported. Buffaloes are at present an important source of bovine flesh consumed in the country. As buffaloes are prized as dairy animals, they are slaughtered only when they become uneconomical and unfit for production. These animals are also not bred and fed for the purpose of producing meat.

16. **Mutton**—We have a large population of sheep and goats, viz., about 40 and 55 millions respectively. Sheep are looked upon more as an important producer of wool than as a source of meat and the main abjective of the sheep development programmes under the Five Year Plans has been to produce more and better quality of wool, though some attempts to improve this species in the eastern and south-eastern regions are also being made from the view point of producing mutton. Goat mutton constituted about 32 per cent of the meat production in country. The Third Five Year Plan does not include any programme for the development of goats for meat production, though some attention has begun

to be given to this due to the increased requirements of mutton as a result of the National Emergency. In view of the present and potential demand for mutton in the country, there appears to be little scope for exporting it from India.

17. **Pork**—Pigs have been one of the important sources of nutritious meat in other countries, particularly those producing a surplus of cereals. In India, organised efforts have not been made in the past for breeding quality pigs. Towards the end of the Second Five Year Plan, a scheme was taken up for the setting up of Regional Pig Breeding Stations-cum-Bacon Factories, Pig Breeding Units and Piggery Development Blocks in the rural areas. It is anticipated that by the end of the Third Five Year Plan, 4 Regional Stations would be in operation at Aligarh, Calcutta, Bombay and Vijaywada. There is no sentiment against the killing of pigs amongst large sections of the Indian population and the production of ham and bacon under hygienic conditions for export purposes could be profitably developed.

BYE-PRODUCTS OF MEAT

18. **Production**—Animals in India are slaughtered primarily for meat. However, the process of meat production yields a number of valueable bye-products. These bye-products of meat fall into two groups, the edible and the inedible. The edible bye-products include tallow, lard, guts, glands, tail stumps and blood. The inedible bye-products include hides, skins, wool, hair, bones, useless meat, horns, hooves and condemned carcasses or parts thereof. These bye-products can be used for the production of various consumer goods, such as stearin, eleomargarin, casings, guts, pharmaceutical products, animal and poultry feeds, fertilisers. The annual production of these bye-products in various slaughter houses in the country is estimated as follows :—

TABLE 2

Production of Bye-products in India

Bye product	Production (Maunds)
1. Guts	11,97,687
2. Oesophagus	1,03,253
3. Bladder	30,772
4. Blood	12,27,915
5. Glands	
(*i*) Cattle	66,661
(*ii*) Buffaloes	93,470
(*iii*) Sheep & Goats	7,62,842
(*iv*) Pigs	27,992
Total	9,50,965
6. Useless meat	5,81,613
7. Horns	1,12,320
8. Hooves	1,82,196

19. **Utilisation**—The slaughter houses and modern meat packing plants in the Western countries make full use of these bye-products. In India full and proper use of most of these products is not being made. If properly salvaged and utilised, these products can yield substantial returns to the producer. Most of the valuable bye-products, mentioned above, other than hides and, to some extent, the intestines are being wasted to a large extent. The value of such losses is estimated at Rs. 254 lakhs per annum. Large quantities of glands are wasted due to non-availability of suitable facilities for timely collection and preservation of these glands for the manufacture of pharmaceuticals. Blood is largely wasted. Horns, hooves, bladder guts, etc. are also not completely collected in many slaughter houses. To conserve these products, well equipped carcass utilisation centres should be set up in places where 4-5 large animals are slaughtered per day. In the Fourth Plan, one hundred such centres are proposed to be set up at a cost of Rs. 3 lakh each. This should give great impetus to the exports of bye-products of meat.

20. Precise data on the extent of utilisation and wastage of bye-products are not available. Actually there is need for conducting a survey for this purpose. In this survey an attempt could be made to spot out areas wherefrom large quantities of bye-products of meat could be collected and to examine the possibilities of economic utilisation of these products. According to the rough estimates made in 1961 by the Directorate of Marketing and Inspection, the existing wastage of various bye-products from slaughter houses in the country is of the following order:—

(a) **Intestines and Bones**—There is a great demand for casings from a number of countries. At present, only a small quantity of intestines is utilised for the preparation of casings for export. Even these are not collected in time and properly cleaned and processed with the result that the casings are often found to contain defects, such as uneven calibration of length, back nodes, grease spots. A considerable quantity also goes bad during the hot weather. About 90—100 per cent of large intestines of cattle and buffaloes, 80 per cent of small intestines of buffaloes and 10 to 15 per cent of intestines of sheep and goats are not utilised. The total wastage is valued at Rs. 35 lakhs. People engaged in the trade for gut cleaning, casing manufacture, collection of bones, horns, hooves etc. are generally poor and illiterate. They possess neither the know-how for processing the materials suitably nor adequate resources to pursue their trade in an organised way and on economic lines with the result that large quantities of raw materials are allowed to go waste. To increase the production of animal casings, blood meal and bones etc. 200 producers' co-operative societies for the manufacture of animal casings and 200 bone co-operative collection centres should be set up.

(b) **Oesophagus**—60 to 70 per cent of oesophagus of cattle and buffaloes worth nearly 1.6 lakhs of rupees is thrown away.

(c) **Bladder**—Bladders are generally thrown away. Only small quantities, obtained from cattle and buffaloes, are exported for making meat sausages.

(d) **Blood**—Blood is of considerable value and can be put to a variety of uses, e.g., as manure, as a feed for animals and as human food mixed with minced meat in sausages. Blood is also useful for medicinal and industrial purposes, such as preparation of albumen, flueing of plywood, dyeing of textiles and paper and dressing of leather before dyeing. If the blood, which is now wasted, could be made into blood meal of a quality suitable for feeding livestock, lakhs of animals could be more adequately fed. With proper adjustment and functioning of vacuum driers, soluble blood powder could also be produced for use in textile and other industries which need albumen for manufacturing processes. As proper arrangements are not available for the collection of blood, most of it goes waste. It is estimated that about 64 per cent of the blood produced in the slaughter houses valued at Rs. 78.6 lakhs is wasted.

(e) **Glands**—Edible glands are generally sold along with meat for human consumption. Glands, such as the thyroid, parathyroid and pituitary, which are particularly valuable for the manufacture of glandular products for medicinal purposes, are generally not put to proper use. Pancreas, which is a valuable gland for the manufacture of insulin, is generally allowed to go waste. Ovaries, obtained from all the animals and testes from cattle and buffaloes, are wasted and only nominal quantities are utilised. Glands wasted are estimated at 5 to 6 lakhs of rupees a year.

(f) **Useless Meat**—The major portion worth about Rs. 35 lakhs is allowed to go waste and only 40 per cent is used as animal feed, mostly for dogs and cats.

(g) **Horns and Hooves**—About 63.5 per cent of horns, valued at about Rs. 65 lakhs, are wasted. About 66 per cent of hooves from cattle, buffaloes, sheep, goats and pigs, valued at about Rs. 33 lakhs, are also wasted.

21. **Modernisation of Slaughter-houses**—The reasons for this wastage and national loss are manifold. The most important of these are the primitive method of slaughtering and the out-moded slaughter-houses. We have a large number of slaughter-houses—1278 according to the available estimate. Nearly 395 lakh animals are slaughtered annually in them. Most of the slaughter houses are very small where less than 20 animals are slaughtered daily. Often it is only a piece of dirty land, without a wall or a flooring, where the animals are slaughtered and flayed on the ground. In this process the carcasses get mutilated and soiled. There are no arrangements for hoisting the carcasses and the supply of clean water is virtually non-existent.

22. The large slaughter houses were built decades ago. They have outlived their utility. They also offer few facilities for the production of wholesome meat. These are usually not fitted with modern machinery and equipment and their layout does not permit an efficient and clean handling of meat. Facilities for cooling the carcasses and for freezing meat are also usually non-existent.

23. Moreover, the valuable bye-products are wasted as these cannot be conserved. The ones which are salvaged like hides and skins are of poor quality due to primitive instruments used for the flaying of animals and defective flaying methods. In the international market, therefore, our products fetch poor prices. Inadequate utilisation of the bye-products of meat also affects the profitability of the meat industry.

24. The need for modernising the slaughter houses has been stressed time and again both for the production of wholesome meat and for the utilisation of the valuable bye-products. The scheme for the modernisation of slaughter houses, should be given priority by the States. Only slaughter houses in cities with a population of 5 lakh and over are to be taken up for modernisation during the Third Plan. A proposal for the modernisation of one hundred slaughter-houses in selected towns with a population of over 50,000 has been included in the Fourth Plan. In order to achieve the target of increasing the exports of meat and meat products by 100 per cent within five years, it is necessary that the modernisation of the town slaughter houses is also taken up as early as possible.

25. **Animal Quarantine and Certification Service**—The biggest handicap in promoting our export trade has been the lack of proper certification service in the country. The exporters of meat products and allied commodities have to face considerable difficulties in acquiring the health certificates for the export consignments. All the importing countries insist on authentic veterinary certificates covering the consignments of animal products. It is due to the want of these certificates that the country is not in a position to export her live-stock products to many important importing countries like U.S.A., U.K., Hong Kong etc. To a few countries, who are still accepting our livestock commodities, we are sending the consignments with health certificates issued by the State Directors, Principals of Veterinary Colleges or in some cases even the Deputy Directors or the District Animal Husbandry Officers. Most of these officers do not have adequate laboratory facilities to undertake a satisfactory examination of the goods being exported with the result that many a time our products have been rejected in the foreign countries on health grounds. In several advanced countries, it is the responsibility of the Federal or the Central Government to issue health certificates.

26. In the Third Five Year Plan, there was a scheme for the setting up of a Central Animal Quarantine and Certification Service in India. But it could not be implemented. In the Fourth Plan proposals again, the scheme for setting up of this most essential service has been included. Necessity for having such an organisation in the country has been felt and stressed repeatedly in important scientific meetings and seminars. If we have to increase the export of livestock products by 100 per cent in the next 5 years, it would be necessary to have the scheme sanctioned and implemented at the earliest.

27. Considering the export potentialities of the bye-products of meat, we recommend that a separate organisation should be set up in the Ministry of Food and Agriculture for handling the problems connected with the production of these bye-products for export purposes. The responsibility for conducting the survey (para 21) may also be entrusted to this Organisation.

28. As a result of the various measures proposed, viz., modernisation of slaughter houses, organisation of co-operative societies and collection centres, institution of quarantine and certification service, there will be marked increases in the supplies of animal casings, blood meal, horns, hoofs and bones which could be harnessed for export purposes and the exports of meat and meat products stepped up by about 100 per cent in the next five years.

CONCLUSIONS AND RECOMMENDATIONS

1. There is an export market for frozen meat in countries like the Middle East and Far East in view of less stringent requirements of veterinary certification and method of slaughtering and our competitive prices. But in view of the present and potential demand for mutton in the country, there is hardly scope for exporting it in the near future.
(Paras 11 and 16).

2. In the Fourth Plan one hundred carcass utilisation centres are proposed to be set up at a cost of Rs. 3 lakhs each. This should give an impetus to the exports of bye-products of meat.
(Para 19).

3. In order to obtain precise data on the waste and utilisation of bye-products in slaughter houses, it is desirable to conduct a special survey of licensed slaughter houses in the country.
(Para 20).

4. To increase the production of animal casings, blood meal, bones etc. 200 producers co-operative societies for the manufacture of animal casings and 200 Co-operative bone collecting centres should be set up.
(Para 20).

5. The modernisation of 100 slaughter houses in selected towns with a population of 50,000 and over should be taken up immediately.
(Para 24).

6. The scheme for the setting up of an Animal Quarantine and Health Certification Service should be sanctioned and implemented at the earliest.
(Para 26).

7. Considering the export potentialities of bye-products of meat, it is recommended that a separate organisation should be set up in the Ministry of Food and Agriculture for handling the problems connected with the production of various bye-products for export purposes. The work of conducting the survey may also be entrusted to this organisation.
(Para 27).

8. If the measures proposed above are taken, exports of meat and its products stepped up by about 100 per cent in 5 years.
(Para 28).

APPENDIX I

Quantum of Exports of Meat from India

(metric tons)

Destination	Meat (Bovine cattle)				Mutton (Sheep and Lamb)				Poultry (killed or dressed)			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Bahrein Island	50	105	147	131	16	13	22	4	14	2	2	1
Hong Kong	54	..	..	..	..	..	..	..	..	..	..	..
Kuwait	5	9	2	8	..	..	..	Neg	..	..	..	..
Trucial Oman	..	..	..	5	229	100	11	5	..	..	..	2
Ceylon	..	..	..	..	24	..	1	..	119	24	57	8
U.S.A.	..	..	..	..	..	..	..	..	..	..	..	Neg
France	..	..	..	..	..	..	..	..	..	..	..	..
Germany West	..	..	..	..	..	..	..	..	..	..	..	..
Other Countries	65	72	7	12	37	42	Neg	Neg	32	49	7	..
Total	174	186	156	156	306	155	34	9	165	75	66	11

Destination	Fresh, chilled or frozen meat (not included earlier)				Total			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Bahrein Island	..	..	..	Neg	80	120	171	136
Hong Kong	..	..	..	2	54	..	..	2
Kuwait	..	..	..	Neg	5	9	2	8
Trucial Oman	..	..	..	..	229	100	11	12
Ceylon	..	..	..	..	143	24	58	8
U.S.A.	454	184	407	380	454	184	407	380
France	11	60	95	70	11	60	95	70
Germany West	1	31	1	2	1	31	1	2
Other Countries	8	16	20	13	142	179	34	25
Total	474	291	523	467	1,119	707	779	643

APPENDIX II

Value of Export of Meat from India

(Rs. in lakhs)

Destination	Meat (Bovine cattle)				Meat (Sheep and lamb)				Poultry (Killed or dressed)			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Bahrein Island	1·02	1·80	2·39	2·33	0·44	0·34	0·59	0·14	0·52	0·09	0·06	0·03
Hong Kong	0·60	..	..	..	..	..	..	..	..	..	..	..
Kuwait	0·11	0·14	0·03	0·15	..	..	..	Neg	..	..	..	..
Trucial Oman	..	..	..	0·10	6·10	3·11	0·40	0·22	..	..	....	0·08
Ceylon	..	..	..	..	0·60	..	0·05	..	3·31	0·78	2·04	0·32
U.S.A.	..	..	..	..	..	..	..	..	..	..	..	0·01
France	..	..	..	..	..	..	..	..	..	..	..	..
Germany West	..	..	..	..	..	..	..	..	..	..	..	..
Other Countries	1·27	1·39	0·17	0·38	0·99	1·01	0·01	0·01	1·15	1·86	0·29	..
Total	3·00	3·33	2·59	2·96	8·13	4·46	1·05	0·37	4·98	2·55	2·39	0·44

Destination	Fresh Chilled or frozen meat (not included earlier)				Total			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Bahrein Island	..	..	..	Neg	1·98	2·23	3·04	2·50
Hong Kong	..	..	..	0·07	0·60	..	..	0·07
Kuwait	..	..	..	0·01	0·11	0·14	0·03	0·16
Trucial Oman	..	..	..	..	6·10	3·11	0·40	0·04
Ceylon	..	..	..	..	3·91	0·78	2·09	0·32
U.S.A.	19·21	7·55	24·24	20·48	91·21	7·55	22·24	20·49
France	0·83	4·54	7·61	6·04	0·83	4·54	7·61	6·04
Germany West	0·06	1·21	0·04	0·06	0·66	1·21	0·04	
Other Countries	0·16	0·58	1·13	0·55	3·57	4·66	1·60	0·94
Total	20·26	13·88	33·02	27·22	26·37	24·22	39·05	30·99

APPENDIX III

Average Annual Share of Principal Importing Countries in the Quantum and Value of Exports of Meat during the Triennium ending 1962-63

Country	Percentage to total Quantum					Value				
	Bovine meat	Sheep/ Lamb meat	Poultry	Others	Total	Bovine meat	Sheep/ Lamb meat	Poultry	Others	Total
Bahrein Island	58·72	10·20	5·88	..	14·29	58·59	10·11	6·67	..	7·29
Hong Kong	10·47	..	..	..	2·07	6·73	..	..	..	0·60
Kuwait	2·91	..	..	..	0·58	3·03	..	..	..	0·27
Trucial Oman	..	69·09	..	..	13·13	..	70·33	..	..	9·64
Ceylon	..	4·85	65·69	..	8·64	..	4·84	61·82	..	6·81
U.S.A.	..	..	..	81·12	40·09	..	..	..	75·93	51·19
France	..	..	..	12·82	6·34	..	..	..	19·34	13·04
Germany West	..	..	..	2·56	1·27	..	..	..	1·97	1·32
Others	27·90	15·76	28·43	3·50	13·59	31·65	14·72	31·51	2·76	9·84
Total .	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

APPENDIX IV

Quantum of Exports of Meat Products from India

(metric tons)

Destination	Horn meal for fertilizer				Hoof, Horns, Tips etc.				Bones crushed			
	1960-61 (2)	1961-62 (3)	1962-63 (4)	1963-64 (5)	1960-61 (6)	1961-62 (7)	1962-63 (8)	1963-64 (9)	1960-61 (10)	1961 62 (11)	1962-63 (12)	1963-64 (13)
(1)												
U.K.	140	264	49	..	1,151	607	1,840	1,112	20,401	17,228	14,785	16,084
Ceylon	221	..	49	..	..	50	..	..	..	..	..	..
Germany West	..	..	..	..	251	171	166	220	2,959	4,597	4,934	2,286
Netherlands	..	..	..	..	6	15	6	10	6,334	6,630	4,173	4,737
Belgium	..	..	..	..	1	..	..	..	12,939	16,736	16,260	10,258
Japan	..	..	..	..	763	1,357	529	1,499	2,444	2,394	2,156	2,166
U.S.A.	..	..	..	..	20	15	20	11	8,184	6,133	9,365	2,492
France	..	..	..	..	7	26	37	7	3,166	4,648	3,840	7,280
Other countries	..	3	..	..	94	147	99	50	765	1,301	3,900	7,213
Total	361	267	98	..	2,293	2,388	2,697	2,909	57,192	59,667	59,413	52,516

(metric tons)

Destination	Bone grist for manufacturing purposes				Bone sinews				Total			
	1960-61 (14)	1961-62 (15)	1962-63 (16)	1963-64 (17)	1960-61 (18)	1961-62 (19)	1962-63 (20)	1963-64 (21)	1960-61 (22)	1961-62 (23)	1962-63 (24)	1963-64 (25)
(1)												
U.K.	6,189	4,813	4,080	4,414	7	48	99	..	27,888	22,960	20,853	21,610
Ceylon	1,354	555	727	469	..	..	..	..	1,575	605	773	469
Germany West	..	..	..	..	..	..	..	..	3,210	4,768	5,100	2,506
Netherlands	..	..	..	..	..	..	..	..	6,340	6,645	4,179	4,747
Belgium	14	480	495	50	..	..	..	..	12,954	17,216	16,755	10,308
Japan	148	..	..	60	3,059	2,030	1,158	422	6,414	5,781	3,843	4,147
U.S.A.	..	..	..	..	..	..	..	..	8,294	6.148	9,385	2,503
France	2,877	4,301	5,080	3,462	..	..	..	..	6,050	8,975	8,957	10,749
Other Countries	49	212	1	396	..	..	..	11	908	1,663	4,000	7,670
Total	10,631	10,631	10,383	8,851	3,066	2,078	1,257	433	73,543	74,761	73,848	64,709

APPENDIX V

Value of Exports of Meat Products from India

(Rs. in lakhs)

Destination	Horn meal for fertilizer				Hoof, horns, tips etc.				Bones crushed			
	1960-61 (2)	1961-62 (3)	1962-63 (4)	1963-64 (5)	1960-61 (6)	1961-62 (7)	1962-63 (8)	1963-64 (9)	1960-61 (10)	1961-62 (11)	1962-63 (12)	1963-64 (13)
(1)												
U.K.	0·71	1·23	0·22	..	6·33	4·08	9·08	6·77	79·86	70·28	57·25	50·24
Ceylon	1·19	..	0·23	..	..	0·26	..	..	..	..	..	..
Germany West	..	..	..	..	3·85	3·45	3·07	4·48	11·25	20·57	21·58	9·04
Netherlands	..	..	..	..	0·13	0·46	0·14	0·11	23·79	26·90	18·23	17·10
Belgium	..	..	..	..	0·01	..	..	..	49·12	69·95	68·36	38·71
Japan	..	..	..	..	3·70	6·52	2·61	6·69	10·05	10·26	12·14	8·34
U.S.A.	..	..	..	..	0·25	0·14	0·19	0·20	33·31	27·45	40·17	10·18
France	..	..	..	..	0·22	1·05	0·99	0·35	11·53	18·68	15·77	25·85
Other countries	..	0·01	..	..	1·24	2·78	1·44	0·89	3·55	6·84	17·48	30·28
Total	1·90	1·24	0·45	..	15·73	18·74	17·52	19·49	222·26	250·93	250·98	197·74

(Rs. in lakhs)

Destination	Bone grist for manufacturing purposes				Bone sinews				Total			
	1960-61 (14)	1961-62 (15)	1962-63 (16)	1963-64 (17)	1960-61 (18)	1961-62 (19)	1962-63 (20)	1963-64 (21)	1960-61 (22)	1961-62 (23)	1962-63 (24)	1963-64 (25)
(1)												
U.K.	23·24	18·27	13·88	13·13	0·02	0·22	0·49	..	110·16	94·08	80·92	78·14
Ceylon	5·12	2·16	2·52	1·48	..	..	..	..	6·31	2·42	2·75	1·48
Germany West	..	..	..	..	..	..	..	..	15·10	24·02	24·65	13·52
Netherlands	..	..	..	..	..	..	..	..	23·92	27·36	18·37	17·21
Belgium	0·05	1·97	1·77	0·15	..	..	..	..	449·18	71·92	70·13	38·86
Japan	0·63	..	..	0·19	13·09	10·77	4·97	1·89	27·47	27·55	19·72	17·81
U.S.A.	..	..	..	..	..	..	..	..	33·56	27·59	40·36	10·38
France	9·95	16·66	19·75	10·34	..	..	..	..	21·70	36·39	36·51	36·54
Other countries	0·17	0·99	Neg.	1·59	..	..	..	0·08	4·76	10·62	18·92	32·84
Total	39·16	40·05	37·92	26·88	13·11	10·99	5·46	1·47	292·16	321·95	312·33	246·08

APPENDIX VI

Average Annual Share of Principal Importing Countries in the Quantum and Value of Exports of Meat Products during the Triennium ending 1962-63.

Country	Percentage to total					
	Quantum					
	Horn meal	Hoof horns etc.	Crushed bones	Bone grist	Bone sinews	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
U.K.	62·40	48·76	29·73	48·07	2·39	32·27
Ceylon	37·19	0·69	..	8·41	..	1·88
Germany West	..	7·97	7·09	..	..	5·84
Netherlands	..	0·37	9·72	..	..	7·73
Belgium	..	Neg.	26·06	3·16	..	21·12
Japan	..	35·91	3·97	0·47	97·61	7·22
U.S.A.	..	0·73	13·42	..	..	10·68
France	..	0·94	6·61	39·07	..	10·80
Others	0·41	4·63	3·39	0·82	..	2·96
Total	100·00	100·00	100·00	100·00	100·00	100·00

Country	Percentage to Total					
	Value					
	Horn meal	Hoof horns etc.	Crushed bones	Bone grist	Bone sinews	Total
(1)	(8)	(9)	(10)	(11)	(12)	(13)
U.K.	60·50	37·51	28·64	47·28	2·44	30·78
Ceylon	39·50	0·52	8·38	8·38	..	1·24
Germany West	..	19·07	7·37	..	..	6·88
Netherlands	..	1·38	9·51	..	..	7·32
Belgium	..	Neg.	25·88	8·23	..	20·65
Japan	..	24·70	4·49	0·54	97·56	8·07
U.S.A.	..	1·10	13·94	..	..	10·95
France	..	4·32	6·35	39·57	..	10·21
Others	..	10·50	3·82	1·00	..	3·70
Total	100·00	100·00	100·00	100·00	100·00	100·00

CHAPTER XVI

FRUITS AND FRUIT AND VEGETABLE PRODUCTS

India produces a large variety of fruits and fruit and vegetable products. The total area at present under fruits and vegetables exceeds 6 million acres of which nearly half is under fruits. Reliable data on the production of fresh fruits are not available. According to available estimates, the current production is over 8 million tonnes. World trade in fresh fruits is of the order of 10 million tons. Western Europe is the main buyer. We have been exporting fresh fruits but in small quantities and to neighbouring countries. The production of certain fruits in certain areas is so prolific that large quantities are wasted. Production can be increased further. Special schemes have been launched recently to bring about quick increases in the production of fruits and vegetables. One of these is also aimed at increasing production of exportable fruits like bananas, citrus fruits and mangoes. The scheme provides for the supply of planting material, pesticides and fertilisers at concessional rates and free plant protection service. Provision of cold storage vans is also envisaged. Our trade in these commodities has not developed so far due to lack of proper marketing arrangements, competitive prices and publicity abroad. Exports are practically a negligible proportion of the production.

2. The producer's share of the consumer's price is practically the lowest for fruits. Secondly, fruits being one of the most perishable agricultural commodities, considerable quantities are lost during storage and transport. The deterioration in their quality during these stages tells adversely on their marketability not only abroad, but also within the country.

3. Efficient marketing services in the shape of cold storage at appropriate marketing stages and quick and refrigerated transport will make available for export considerable quantities out of the existing production and, thus, turn quantities wasted at present into valuable foreign exchange. The scope for expanding exports and the export promotion measures needed in respect of some important fruits and fruit and vegetable products are given below.

सत्यमेव जयते

CITRUS FRUITS

PRODUCTION

4. The estimated annual production of different citrus fruits in India, based on the average of 1954-55 to 1958-59, is given in the following table:—

TABLE 1

Production of Citrus Fruits in India

Variety	Production (Tonnes)	Percentage (Total production)
1. Oranges—		
(*a*) Mandarin orange	2,92,875	44·40
(*b*) Sweet orange	1,08,565	16·46
(*c*) Sour and bitter orange	6,351	0·96
Total .	4,07,791	61·82
2. Limes	1,62,763	24·68
3. Other citrus fruits	89,009	13·50
Total citrus fruits .	6,59,653	100·00

Citrus fruits are grown in almost every State in India. Mandarin orange is the most important of the citrus fruits grown in India, followed by limes and sweet orange. Other citrus fruits produced by us are pomalo, grape-fruit, lemon etc. There is scope for introducing certain new varieties. Emphasis should be laid on Malta Blood Red for which there is a vast scope in the Abohar-Ganganagar area in the Punjab and Rajasthan States and on limes for which there is scope in Madras and Andhra Pradesh. Schemes for these are under the consideration of the Government.

EXPORTS

5. The principal importers of citrus fruits are France, West Germany, U.K., Canada, Netherlands and Belgium. The citrus fruits imported into these countries consist of oranges, grapefruits and lemons. Oranges account for the bulk of the imports. India does not play an important part in the world trade in citrus fruits.

6. Statistics of country-wise annual exports from India of different citrus fruits for the period 1957-58 to 1963-64 are given in Appendices I(a) and (b). Sweet oranges, viz., Mosambi, Sathgudi and Malta, account for the largest proportion of quantum and value. Next come lemons followed by grapefruits, limes and other citrus fruits. The export of mandarin orange is negligible, although it is cultivated on a very large scale and its production is more than double that of sweet oranges. Because of their tight rind, the sweet oranges stand the hazards of transportation much better than mandarin oranges which have a loose rind. Our citrus fruits are imported mainly by the Persian Gulf countries, viz., Bahrein, Trucial Oman, Kuwait, Saudi Arabia, Pakistan and Ceylon.

7. Statistics showing the annual quantum and value of the important citrus fruits, viz., sweet oranges, lime and lemons, exported from India during the last seven years ending 1963-64 are given in the following table: —

सत्यमेव जयते

TABLE 2

Exports of Citrus Fruits from India

Years	Sweet Oranges	
	Quantity Metric tons	Value Rs.
(1)	(2)	(3)
1957-58	257·9	1,63,088
1958-59	288·0	1,80,256
1959-60	213·6	1,42,199
1960-61	1,632·8	10,23,414
1961-62	3,805	13,69,682
1962-63	3,526	11,45,784
1963-64	1,659	4,87,359

TABLE 2—*contd.*

Years	Limes	
	Quantity metric tons	Value Rs.
(1)	(4)	(5)
1957-58	15·6	12,352
1958-59	8·5	7,622
1959-60	23·8	10,413
1960-61	333·6	8,85,869
1961-62	5·7	5,696
1962-63	7·0	13,724
1963-64	4·2	5,602

Years	Lemons	
	Quantity metric tons	Value Rs.
(1)	(6)	(7)
1957-58	0·5	748
1958-59	1·3	1,447
1959-60	6·8	7,929
1960-61	38·0	39,503
1961-62	86·8	71,769
1962-63	14·3	18,130
1963-64	36·4	40,153

There was a sudden spurt in the quantum of exports of these fruits in 1960-61. The quantum rose by seven times in the case of sweet oranges, 13 times in the case of limes and 4½ times in the case of lemons. In 1961-62, the quantum of limes came down abruptly, but it went up appreciably in the other cases. During 1962-63, it was the other way about, the exports of limes going up and those of others going down. During 1963-64, the exports of sweet oranges and limes recorded a fall while those of lemons showed a rise.

8. Statistics showing the annual imports into India of different citrus fruits during the last seven years from various countries are given in Appendices II(a) and (b). It would be observed that the imports of grapefruits and lemons are negligible. Some Malta oranges (under the heading 'other citrus fruits') are imported from West Pakistan under a trade agreement. Punjab and Rajasthan are producing this fruit in large quantities. It is suggested that, with a view to saving foreign exchange, imports of Malta oranges from Pakistan should be banned. This will improve the economic condition of the Malta growers of Punjab and Rajasthan.

9. The quantum of citrus fruits exported by us at present is a negligible proportion of our total production. India is producing some of the finest varieties of fruits, particularly oranges and limes. There is a tremendous scope for increasing the exports of these quality fruits. For some of these, there is considerable overseas demand, e.g., for limes in the East European countries. Increase in the exports of citrus fruits will go a long way in improving the economic condition of the growers, who are not getting remunerative prices for their produce. Cases are not wanting when,

in the years of bumper crops, the growers did not get enough even to meet the transport charges from their orchards to the assembling markets by the sale of fruits. Efforts should, therefore, be made to encourage the exports of limes.

EXPORT PROMOTION

10. **Marketing**—The first essential requirement is to improve the conditions of marketing of citrus fruits. The producer hardly gets 20 to 40 per cent of the price paid by the consumer. The export trade is confined to a few traders, particularly of the port cities of Bombay, Madras, and Calcutta. These traders pay very little attention to the selection of fruits, grading, packing etc. on account of which the reputation of the citrus fruits suffers greatly in the importing countries. It is, therefore, very necessary to improve the standard of marketing services, e.g., storage, transport, grading and to promote cooperative marketing for citrus fruits.

11. **Storage**—Barring Japan, India is the only country growing mandarin oranges of superior quality in appreciable quantities. The only limitation, however, is that the life of the fruits under the normal conditions is very short, not exceeding 10 to 12 days. If they are treated with wax, they can hold out for months. Experiments conducted at the Central Food Technological Research Institute, Mysore, have shown that waxed mandarin oranges stored at 40°—45°F, with a relative humidity of 90 per cent, can remain in good condition for about three months. Efforts should be made to create export markets in the European countries for some of the renowned varieties of mandarin oranges, particularly Nagpur Santra and Coorg, Darjeeling and Khasi mandarin oranges, which are being produced in the country in large quantities. Adequate publicity should be given to the advantage of treating fruits with wax.

12. **Transport**—Though sporadic attempts have been made in the past to send consignments by ship to the European markets the consignments reached the destinations in an extremely bad condition due to lack of adequate refrigeration facilities. Twenty-four fruits of mandarin oranges flown some time back to Switzerland by the Directorate of Marketing and Inspection evoked an encouraging response from the trade. Considering the importance of this fruit, it would be desirable to send a series of trial consignments to different European destinations so that the economics of the transactions may be properly worked out. Provision of adequate refrigerated space for the transport of citrus fruits in ships plying regularly between India and other countries will act as an incentive to exports.

13. **Quality Control**—Compulsory quality control on the exports of citrus fruits should be enforced immediately so that inferior varieties and qualities may not be exported by the traders.

14. **Other Measures**—The Exports Credit and Guarantee Corporation, constituted by the Government of India, should also cover the export risks of citrus fruits. Publicity and market research in order to determine cost structure and consumer preference should be conducted in the countries which may be our potential buyers.

15. **Export Targets**—The perishable nature of this commodity does not permit the fixation of a high target for the near future. A modest target of 6 thousand tonnes per annum of citrus fruits for export by the end of the 4th Plan is suggested against the exports of 1729 tonnes in the year 1963-64.

MANGOES

PRODUCTION

16. Mango is an important fruit grown throughout the tropics and in the milder sub-tropical regions. It is grown in countries to the East of India right up to the Southern China and through the Malayan Archipelago to the Western parts of Australia. It is one of the important fruits of Java and Philippines. It also grows successfully in Hawaii and other Pacific Islands, West Indies, Madagascar and along the coast of East Africa and, to some extent in Florida (USA). No data, however, are available about the area and production of mangoes in different countries. It is, therefore, not possible to estimate the world area and production. In India, this fruit grown over an area of over 7 lakh hectares with an annual production of 50 lakhs tonnes, accounts for about four-fifths of the estimated area under all kinds of fruits. International trade in mangoes is insignificant, largely for the reason that the fruit is highly perishable and cannot stand long journeys. Another reason seems to be that the people of Western countries have yet to develop a taste for this luscious fruit.

17. As in the case of other fruits, no separate records of area and production relating to mangoes as published by different States in India except by U.P. and Madras, where the acreage figures are given in the 'Season and Crop Reports'. According to the 'Report on the Marketing of Mangoes in India', published by the Directorate of Marketing and Inspection, the estimated production of mangoes during the year 1956 was as follows—

TABLE 3

Production of Mangoes in India

State	Production (000 metric tons)	Production (Percentage to total)
1. Andhra Pradesh	348	6·88
2. Assam	11	0·22
3. Bihar	266	5·25
4. Bombay	95	1·87
5. Jammu & Kashmir	2	0·04
6. Kerala	423	8·34
7. Madhya Pradesh	135	2·66
8. Madras	175	3·45
9. Mysore	313	6·17
10. Orissa	210	4·14
11. Punjab	53	1·05
12. Rajasthan	Negligible	..
13. Uttar Pradesh	2,006	3·97
14. West Bengal	926	18·27
15. Union Territories	106	2·09
	5,069	100·00

By far the largest production is in Uttar Pradesh. The other important mango producing States are West Bengal, Andhra Pradesh, Bihar, Kerala and Mysore. Although the production in Maharashtra and Gujarat (formerly Bombay State) is small, these States are producing some of the finest varieties of mango, like Alphanso, which has very good export potentialities.

In the absence of statistics for other years it is not possible to indicate the exact trend in the production of mangoes in the country. It is, however, reported that due to efforts made by the State Governments for increasing the area under fruits in the Five Year Plans, the production is on the increase.

EXPORTS

18. Statistics showing the volume and value of mangoes exported to different countries are given in Appendix III for seven years ending 1963-64. Both the quantum and value have risen during this period. From 932 metric tons in 1957-58 the volume touched 2109 metric tons in 1961-62, the seven-year peak. The value rose every year between 1958-59 and 1961-62, when it came to 19 lakh rupees as against only Rs. 5.7 lakhs, four years ago. The value also dropped to 15 lakhs rupees in 1962-63, but rose to Rs. 16 lakhs in 1963-64.

19. The chief importing countries are the Persian Gulf countries of Kuwait, Bahrein, Trucial Oman, Saudi Arabia and Aden, Pakistan, Singapore and Malaysia. Small quantities of mangoes are also exported, mostly by air, to U.K., France and other European countries. The exports do not constitute even one per cent of the production. As India is producing choice varieties of mangoes in sizable quantities there is need for exploiting this advantage and securing a foothold in the foreign markets.

EXPORT PROMOTION

20. **Marketing**—The conditions under which mangoes are marketed in the country are not in any way better than those of citrus fruits. The mango producer, like the citrus fruit producer, hardly gets 20 to 40 per cent of the price paid by the consumer. Similarly, in regard to marketing services, the same deficiencies prevail. It is, therefore, equally necessary to improve the standard of marketing service, e.g., storage, transport, grading and co-operative marketing.

21. **Storage**—Researches conducted at the Central Food Technological Research Institute, Mysore, indicate that the treatment of fully mature fruits with fungicidal wax emulsion increases their keeping capacity both at room temperature and in cold storage. It also reduces considerably the spoilage during storage and transportation. Further, it was observed that mangoes remained in good condition for 4 to 8 weeks, if stored at 42° to 45°F with 85 to 90 per cent relative humidity. The approximate storage and post-storage life of mangoes grown in different parts of the country has also been worked out. Adequate publicity should be given to the advantages from the treatment with wax and storing them at suitable temperatures.

22. **Transport**—As the high cost of air transport is not economical for the commercial export of mangoes, it will be worth while sending some trial consignments of mangoes to European markets by ships under refrigerated condition. There is need to provide adequate refrigerated space in ships for transporting mangoes.

23. **Quality control**—U.S.A., which was showing interest in Indian mangoes, has banned their imports due to the appearance of the mango stone weevils in the fruits that were sent to that country. The assurance, that we have several varieties, which are free from this insect and can be imported safely, has proved of no avail so far. This points to the need for enforcing rigid quality control on the export of mangoes.

24. The Export Credit and Guarantee Corporation should be persuaded to cover the export risk of Mangoes.

25. A mango delegation should be sent to U.K., France and West Germany to explore export possibilities and to establish contacts with intermediaries engaged in the import of fruits.

26. **Export Targets**—The perishable nature of mangoes does not permit of any substantial exports in the near future. A modest target of 3 thousand tonnes per annum is suggested for being achieved by the end of the Fourth Plan, against the exports of 1595 tonnes in 1963-64.

APPLES

27. There is at present negligible export trade in Indian apples. The following table shows the exports of apples from India during the last four years: —

TABLE 4

Exports of Apples from India

Year	Quantity (Metric tons)	Value (Rs. in thousands)
1960-61	2	6
1961-62	3	12
1962-63	9	25
1963-64	2	8

The countries importing Indian apples are Nepal, Pakistan and U.S.A. Prices of apples in India are high compared to those in other apple- producing countries. No data about production of apples in India are available. There have been sizeable increases in apple areas in the hill regions, particularly in Himachal Pradesh, Punjab, U.P. and Jammu & Kashmir, as a result of the Second Five Year Plan Schemes. The increases in output are likely to be perceptible by the end of the Third Plan.

28. Considering the fact that a demand for Indian apples is yet to be created in foreign countries and the limitations set by our uncompetitive prices, there is little prospect of any substantial rise in the exports of this fruit in the near future. However, we may request our trade representatives in neighbouring countries like Ceylon, Pakistan, Malaysia, Burma to gauge the scope for exporting Indian apples to these countries. U.K. imports large quantities of apples from Australia and New Zealand. The possibilities of exporting apples to U.K. and other European countries should also be investigated.

GRAPES

29. There is at present negligible export trade in Indian grapes. The following table shows the exports of grapes from India during recent years: —

TABLE 5

Export of Grapes from India

Years	Quantity (metric tons)	Value (Rs. in thousands)
1960-61	2	5
1961-62	3	10
1962-63	4	9
1963-64	3	8

The countries importing Indian grapes are Bahrein Islands, Kuwait and Pakistan. Prices of grapes in India are high compared to those in other grape producing countries.

30. No data about production of grapes in India are available. The varieties in commercial cultivation in India are an assorted motely group. These are not likely to have consumer appeals elsewhere, particularly in countries that have developed a sophisticated taste for imported fruits. The Bhokri and the Bangalore Blue, which are the important varieties grown in India, are far below the standards of an exportable variety. A relatively new entrant is the Anab-E-Shahi, area under which is expanding fairly rapidly, particularly in the Andhra Pradesh and Madras States. This can be developed as an export variety if its cultivation methods are standardised for obtaining a 'specification' bunch and its crop maturation is oriented to the summer months of March to May when there is hardly any sizeable grape harvest in other parts of the world. Indian Council of Agricultural Research is experimenting with some Russian and other exotic varieties and, if any, of these are found promising, they can be added to the export list. A scheme for extending cultivation of Anab-E-Shahi grapes in Hyderabad and in the Coimbatore and Salem districts of Madras is under the consideration of the Government.

31. Considering the fact that a demand for Indian grapes is yet to be created in foreign countries and the limitations set by our uncompetitive prices, there is little prospect of any substantial rise in the exports of this fruit in the near future. However, we can ask our trade representatives in the neighbouring countries like Ceylon, Pakistan, Malaysia, Burma to investigate the scope for exporting Indian grapes to these countries.

BANANAS

EXPORTS

32. India is one of the greatest producers of bananas in the world. The total area under banana cultivation is about 4 lakh acres. Statistics showing the production of bananas during 1960-61 to 1963-64 are given in the following table:—

TABLE 6

Production and Export of Bananas

(Thousand metric tons)

Year	Production	Export	Percentage of export to production
1960-61	2,220	13	0·59
1961-62	2,247	7	0·31
1962-63	N.A.*	11	..
1963-64	N.A.	11	..

*Not available.

About 60 varieties of bananas are cultivated in India. Of these only 12 varieties are of commercial importance. All these varieties are not suitable for commercial exploitation in international trade. A variety fit for export should meet consumer's preference abroad, conform to grade specifications, be capable of withstanding long-term transport, be emenable to cold storage, etc. On the above criteria, the following varieties of Bananas have been considered suitable for export.

1. Basrai.
2. Poovan.
3. Virupakshi.
4. Rasthali.
5. Thellackakkarakeli.
6. Amritsagar.

33. A statement showing the quantum and value of exports of bananas during the last 4 years is given in Appendix IV. Both the quantum and the value dropped markedly in 1961-62. They recovered during the next two years and aproximated these in 1960-61. We exported above 11 thousand tonnes of bananas and earned foreign exchange of about 36 lakhs rupees during 1963-64. Our exports of bananas constitute an insignificant proportion of the total production. There exists an enormous scope for the expansion of banana exports.

34. Banana crop is high yielding and, when compared with cereals, yields 3 to 4 times more per acre on dry weight basis and 15 times more on a fresh weight basis. This means that a much smaller acreage is required for the cultivation of bananas. Moreover, the tropical conditions of India are quite favourable for producing bananas. The export of bananas will not effect the internal requirements as the production can be stepped up readily.

35. Our exports of bananas are mainly confined to the countries in the Persian Gulf. Efforts made previously in sending trial consignments to U.K. and other European countries failed due mainly to the non-availability of refrigerated gas storage space. These efforts are still continuing. Efforts are necessary to explore new markets for bananas.

EXPORT PROMOTION

36. **Demand**—European countries are getting their supplies of bananas from West Indies, South and North America and other countries in the Caribbean Sea. The varieties received by them belong to the Lacatan group and Gros Michel. Indian varieties which have entered foreign trade are Basrai and Harichal. These belong to the Cavendish group and taste better than those being imported by U.K. etc.

37. Practically no bananas have been so far exported to the South East Asian countries, viz., Malaysia, Hongkong, Japan, etc. These countries obtain their supplies mainly from China, Formosa and Vietnam. It might be added that the Government of Japan have banned the import of fruits, including bananas, from India under their quarantine law on the ground that they are infested with the Mediterranean fly. This allegation has been examined in consultation with the Plant Protection Adviser to the Government of India. It has been found that this fly does not occur in India and the question of Indian fruits being infested with it does not arise. The matter has been taken up with the Japanese Government. A delegation sponsored by the Government of India to explore possibilities and methods of expansion of banana exports recently visited Europe. According to their report, the East European markets, U.S.S.R., Japan and Italy can absorb

large quantities. As a promotional effort, we should tap fresh markets by sending sample consignments of bananas to countries like Yugoslavia, West Germany, France, U.K. and Poland. The Arab countries also offer large potential markets. The delegation have reported that exports to the West Asian countries can be raised to about 15,000 tons per year by the end of 3rd Plan. We can also export about 10,000 tonnes to Iran provided a suitable trade agreement is entered into with them.

38. **Problems**—The problems connected with the export of bananas are peculiar to the commodity. The existing practices of harvesting, packing, preservation and transportation are unsatisfactory from the point of view of export. A successful export effort calls for an efficient coordination between producers, transportation and loading agents, importers, retail shops and other related agencies. In view of the long distance of the overseas markets (about 7,500 miles) harvesting has to be done pre-maturely (about 80 per cent maturity). The long distance is also a handicap to the transport of fresh bananas as it requires hiring of high-speed vessels fitted with cold and gas storage facilities. Arrangements are needed for inspection in the ships' holds almost daily and for the diversion of cargo to the nearby ports in case the fruit starts ripening earlier or for other reasons of emergency.

39. The big companies, which are monopolising the international trade in bananas, own many special ships, large-banana plantations and several research laboratories, apart from an efficient commercial organisation. To organise banana trade on these lines is beyond the capacity of co-operatives as it involves the investment of huge capital. A semi-Governmental body such as a Banana Export Corporation, may be set up to organise the international trade in bananas on systematic and efficient lines. The shares of the Corporation should be held by the Government of India and the States producing bananas. In the initial stage, it would be preferable to collaborate with some foreign agencies so as to gain experience and to acquire the technical know-how.

40. **Banana Products**—It is reported that there is a great demand for dried bananas and banana-powder in the European countries. The Central Food Technological Research Institute has done considerable work on the manufacture of banana-powder from ripe fruits by the spray drying as well as roller drying techniques. The Institute has given considerable technical assistance to a firm—Bassein Annala Sukeli Processing Sahakari Society Ltd., Bassein—which is producing and marketing banana-figs. Indian Fruit Processors A-2, Industrial Estate, Kollakadavu, P.O., Alaramanpuram, Distt. Alleppey, Kerala State, are also producing figs.

41. The Jalgaon District Cooperative Marketing Society Ltd. is setting up a plant for the manufacture of banana powder. That plant is expected to go into production shortly. The Kaira District Cooperative Milk Producers' Union Ltd., Anand, has carried out a trial production of banana based ice cream powder and has sent samples abroad to elicit the reaction of the consumers. The response has been very favourable. The Kaira Union is now setting up a plant for the manufacture of the powder. The necessary foreign exchange for the import of machinery has been arranged for them.

42. The following suggestions made by the Banana Delegation for developing the export of bananas should be considered as early as possible—

(a) There is need to enforce specifications and quality control measures in respect of export of bananas and banana products. For this purpose, technical people should go round and educate the workers in the process of cutting and handling banana bunches. A couple of foreign experts should also be invited immediately. That could be followed up by deputing some of our people for training abroad.

(b) The most modern banana carriers should be acquired.

(c) Facilities of elevator conveyors should be provided by the Port Trust.

(d) Suitable ware-housing facilities at different marketing stages should be developed.

(e) Arrangements for crating bananas in corrugated card-board should be developed. The additional cost could be off-set by saving in shipping and higher prices. This would also help grading.

(f) It is necessary to maintain the required level of temperature in the wagons carrying bananas for export. Pending the construction of refrigerated wagons, alternative devices should be found to fulfil this objective. The Railway Board has agreed to undertake research in this field. In the meantime, they have set up a study group to investigate and recommend the necessary devices for this purpose.

43. Export should be made through foreign companies like United Fruit Company Cogis, who are well-versed in the transport and packing of banana for exports. There are 50—60 companies in banana trade in Europe and America. Some of these companies should be persuaded to enter into contracts with the cooperative societies in India.

FRUITS AND VEGETABLE PRODUCTS

PRODUCTION

44. The industry for the preservation of fruits and vegetables by canning is of recent origin in India, although products like pickles, chutneys, murabbas are being prepared in India and exported since ancient times. The total quantity of fruit and vegetable products manufactured in India during recent years is indicated below: —

TABLE 7

Production of Fruit and Vegetable Products

Year	Quantity (000 metric tons)	Value (Rs. in crores)
1959	33	4·54
1960	40	5·35
1961	46	6·50
1962	50*	7·11*

*Provisional.

EXPORTS

45. A statement showing the quantum and value of exports of fruit and vegetable products from India since 1960-61 is attached as Appendix V. By far the most important items under the group 'fruit and vegetable products' entering into India's export trade are pickles, chutneys and condiments. The other products being exported consist of canned or bottled

fruits, jams, jellies, marmalades and fruit juices. The important countries importing Indian fruit and vegetable products are U.K. and West Asian and South-East Asian countries. We exported about 3,000 tonnes of these products, valued at about 72 lakh rupees, during 1963-64. Preserved vegetables and vegetable preparations account for the largest proportion of the volume as well as value, their average annual share being about 73 per cent of the quantum and 79 per cent of the value during the triennium ending 1963-64. Thus, they compare favourably with fruit products in respect of unit value as well.

EXPORT PROMOTION

46. We have been mostly exporting mango products to foreign countries. These products have so far been purchased mostly by Indians living in foreign countries and some Europeans who have stayed in India and have acquired a taste for them. There is demand from the residents of West Asian countries too. It has not been possible to introduce our products in America, Germany and East European countries on account of lack of publicity.

47. Our fruit products made from mangoes, guavas, litchis, papaya etc. can become popular in overseas markets provided their nutritive value is brought home to people there and their prices are reasonable.

48. The manufacturers have been experiencing great difficulty in making fruit products because of non-availability of sugar. In order to ensure a timely supply of sugar, a special quota of sugar may be allotted directly by the Centre to the industry every year.

49. A cash incentive at the rate of 10 per cent is allowed on foreign exchange earned through exports of fruit and vegetable products. Despite this, the exports have not shown any appreciable improvement. It has not been possible to export other fruit products as pine-apple products, orange segments, canned guavas, canned papaya, canned litchi, ginger in syrup etc. as South African, Malaysian, Japanese and Hawaiian prices are much lower. If we are to develop exports of these products, the rate of cash incentive would have to be raised substantially.

50. Another point to be considered here is the question of subsidy on tin plate used in canned products. On the recommendation of the Tariff Commission, a subsidy at the rate of Rs. 500/- per ton of tin plate consumed in the manufacture of canned products was introduced in June, 1958. This has been withdrawn with effect from 1-4-1963. The incidence of tin plate subsidy on a case of mango nectar, which is at present exported at Rs. 30/- per case (96 cms. of 5 oz. each), will amount to Rs. 2.42. If the canners are forced to increase their price by the amount of subsidy the export of canned fruits and vegetables will naturally suffer. The trade has represented for the restoration of this facility. This point needs to be given consideration.

51. The industry needs up-to-date automatic or semi-automatic processing machines. Efforts should be made to provide requisite foreign exchange for the import of plants for (a) processing of (i) pine-apples, (ii) oranges, (iii) tomatoes, (iv) peas and other vegetables and (v) mangoes and (b) dehydration of onions.

52. Railway transport at present available is inadequate. Wooden ventilated wagons should be provided for the movement of raw materials, (fruit and vegetables) from the centres of production to the factories in

order to avoid wastage and spoilage. It would be desirable to set up future factories for the production of fruit and vegetable products in the areas of large scale production of fruits and vegetables concerned. Another incentive that can be given is to allow exporters desirous of popularising their products in foreign countries to spend abroad a certain percentage, say, 5 per cent, of their export earnings on publicity of their products.

53. The fruit and vegetable products industry is handicapped on account of inadequate warehousing facilities. Fruits and vegetables, the basic raw materials of the industry, are perishable goods and it is very important that the canners get adequate cold storage facilities to store the raw materials near-about their factories so that they may be able to draw upon their stocks according to their need.

54. Fruit products to be placed in the export markets shall have to be improved quite considerably in respect of quality as well as hygiene. The idea that fruit surpluses and culls should go into the cans is outmoded and wholly out of place now. Modern concepts of the fruit products industry demand the utilisation of raw produce specially grown for that purpose.

55. Efforts should be made to produce more dehydrated vegetables like Hima peas for export.

56. High ocean freights are working as an impediment to smooth exports. The current rate of freight for the fruit and vegetable products from India to U.K. is 195 sh. per 40 c.f. compared to 169 sh. from Australia to U.K., though the distance in the latter case is nearly double. Efforts should be made to get the freights reduced.

POSSIBILITIES OF FURTHER PROCESSING ETC.

57. Efforts should be made to explore possibilities of producing new items of fruit and vegetable products which could be exported. The following suggestions are for considerations—

(a) *Tomato Paste*—Italy exports tomato paste worth about Rs. 2 crores per year to European countries. The price and quality of tomato grown in India compare favourably with those of the Italian tomato. In case an imported vacuum concentrate plant costing Rs. 2.5 lakhs is installed at a suitable place, export of tomato paste could be taken up.

(b) *Pine-apple Products*—The present-day preference in the world markets is for pine-apple slices and juice in cans. There is a vast scope for the manufacture of pine-apple slices and juices in India. Most countries, including India, use the Smooth Cayene (Kew) and Mauritius varieities. It would be advantageous if we put out a distinctive product that is superior to the Kew or Mauritius variety. The Queen variety, which is being grown in Tripura and whose cultivation can be extended elsewhere also, has the best taste among all commercial varieties. Besides, it possesses other qualities, such as a more attractive flesh colour, uniform ripening habit and early fruiting stage. Its canned fruit can be preserved without any sugar additive. Tripura alone can bring a lakh of acres under this fruit at short notice and the existing factory there can be expanded. Besides, there is a large scope for extended cultivation of pine-apples on the culturable waste lands in the Kerala State which can be exploited for feeding a GINACA machine. The expectation is that such extension could be done over more than three lakh acres. Efforts should be made to expand cultivation of this fruit in Mysore. Efforts should be made to develop exports of canned pine-apple and pine-apple concentrates by allowing imports of a suitable plant. The cost of this plant is likely to come to Rs. 10 lakhs.

(c) *Fruit Juice Powder*—Mango, papaya, orange lime and pine-apple juice powders have large markets. M/S. Tata Oil Mills are putting up a plant for preparing fruit juice powders in collaboration with a Japanese firm. Every possible assistance should be given for setting up plants of this type.

(d) *Dehydrated Onions*—A plant for dehydrating onions has been set up in Nasik District. A U.S.A. firm has undertaken to buy 200 tons of dehydrated onions in various forms every month. Setting up of similar projects should be encouraged.

(e) *Mango Cereal Flakes*—The Central Food Technological Research Institute, Mysore, has developed a new break-fast food from mango pulp. Samples sent by them have been appreciated in U.K. and U.S.A., Efforts should be made to develop the manufacture of this item for export in consultation with C.F.T.R.I., Mysore.

(f) *Papain and Pectin*—Indian papain has been the subject of trade enquiries from the U.S.A. This needs to be developed into a standard product as its use is largely for pharmaceutical purposes. The Central Food Technological Research Institute, Mysore, has successfully demonstrated that it is economical to grow papayas for the manufacture of papain and pectin. Papayas can be grown in Gujarat, Mysore, U.P. etc. for installing various manufacturing units for papain and pectin which have substantial export markets.

(g) *Other Fruit Products*—There are good prospects for exporting certain other fruit products, too, e.g. neera, mango juice, litchi, preserved litchi bulbs and guava, raspberry and other fruit pulps.

EXPORT TARGETS

58. Considering the fact that a demand for many of the items of fruit and vegetable products is yet to be created in foreign countries and the limitation set by our uncompetitive prices, we may not have to achieve any substantial increase in the exports of fruit and vegetable products in the near future. A modest target of 5 thousand tonnes per annum of fruit and vegetable products by the end of the IV Plan is suggested against existing exports totalling 3,249 tonnes.

CONCLUSIONS AND RECOMMENDATIONS

CITRUS FRUITS AND MANGOES

1. Imports of certain citrus fruits at present allowed from Pakistan under the Indo-Pakistan Trade Agreement should be stopped.

(Para 8).

2. Efforts should be made to encourage exports of limes.

(Para 9).

3. It is necessary to improve the condition of marketing of citrus fruits and mangoes by improving the standard of marketing services and promoting cooperative marketing.

(Para 10 & 20).

4. Efforts should be made to create export markets in the European countries for some of the renowned varieties of mandarin oranges, particularly Nagpur Santra and Coorg, Darjeeling and Khasi mandarin oranges which are being produced in the country in large quantities. Adequate publicity should be given to the advantages of treating citrus fruits and mangoes with wax.

(Paras 11 & 21).

5. Trial consignments on the lines of those sent recently by the Directorate of Marketing and Inspection should be sent to European countries so that the economics of the transactions may be worked out.

(Para 12 & 22).

6. Provision of adequate refrigerated space in the ships should be made for the transport of citrus fruits and mangoes.

(Paras 12 & 23).

7. Compulsory quality control on the export of citrus fruits and mangoes should be enforced.

(Paras 13 & 23).

8. The Export Credit and Guarantee Corporation should be persuaded to cover the export risks of citrus fruits and mangoes.

(Paras 14 & 24).

9. Publicity and market research in order to determine cost structure and consumer preferences for citrus fruits should be conducted in foreign countries.

(Para 14).

10. A mango delegation should be sent to U.K., France and West Germany to explore export possibilities and to establish contacts.

(Para 25).

11. A modest target of 6,000 tonnes per annum of citrus fruits for export may be fixed for the end of the Fourth Plan against 1,729 tonnes of export in 1963-64.

(Para 15).

12. It would be reasonable to fix a target of 3,000 tonnes of mangoes for export per annum by the end of the Fourth Plan against the exports in 1963-64 of 1,595 tonnes.

(Para 26).

APPLES AND GRAPES

We may request our trade representatives in neighbouring countries like Ceylon, Pakistan, Malaysia, Burma to gauge the scope for exporting Indian apples and grapes to these countries. The possibilities of exporting apples to U.K. and other European countries should also be investigated.

(Paras 28 & 31).

BANANAS

1. We should tap fresh markets by sending sample consignments of bananas to European countries like Yugoslavia, West Germany, France.

(Para 37).

2. There is need to set up a Banana Export Corporation to organise large-scale export of bananas. The shares of the Corporation should be held by the Central Government and the important banana producing States.

(Para 39).

3. The manufacture of banana products should be organised keeping in view the potential demand in foreign countries.
(Paras 40 and 41).

4. The measures suggested by the Banana Delegation to develop the marketing aspects, viz., quality control, modern carriers, elevator conveyors, suitable ware-housing, crating and transport should be considered as early as possible.
(Para 42).

5. Exports should be made through foreign companies like United Fruit Co. and Cogis who are well versed in the transport and packing of bananas. Some of the companies should be persuaded to enter into contracts with the cooperative societies in India.
(Para 43).

6. Efforts should be made to expand exports to the East European countries. U.S.S.R., Japan, Italy, Middle East and Iran, as recommended by the Banana Delegation. There is prospect of our developing exports to the West Asian countries to the tune of about 15,000 tonnes and to Iran to the tune of 10,000 tonnes per year.
(Para 37).

FRUITS AND VEGETABLE PRODUCTS

1. Indian fruit and vegetable products have so far been exported to cater to the demand from Indian nationals settled abroad. The foreigners have yet to develop a taste for these. Efforts should be made to give adequate publicity to various fruit and vegetable products exported from India.
(Para 46).

2. By far the most important raw material used in the fruit canning industry is sugar. A special quota of sugar may be allotted by the Government of India directly to the manufacturers for this purpose every year.
(Para 48).

सत्यमेव जयते

3. At present a cash incentive at the rate of 10 per cent is allowed on foreign exchange earned through exports of fruit and vegetable products. This is rather inadequate and should be raised. (Para 49).

4. A subsidy at the rate of Rs. 500 per ton of tin plate consumed in the manufacture of canned products was being given till 31-3-63. The trade has represented for the restoration of this facility. This may be considered. (Para 50).

5. Efforts should be made to provide foreign exchange for the import of up-to-date automatic or semi-automatic processing machines required by the industry. (Para 51).

6. Railway transport needs to be improved. Wooden ventilated wagons should be provided for the transport of fruits and vegetables from the centres of production to the factories. (Para 52).

7. Exporters desirous of popularising their products in foreign countries may be allowed to spend abroad a certain percentage, say 5 per cent of their export earnings on publicity of their products. (Para 52).

8. Fruit and vegetable products factories and dehydration plants should be set up in areas of large-scale production of the fruits and vegetables concerned. (Para 52).

9. Proper ware-housing facilities for fruits and vegetables, the basic raw materials of the industry, should be provided. (Para 53).

10. Fruit products shall have to be improved in respect of quality as well as hygiene. The idea that fruit surpluses and culls should go into the can is out-moded. The modern concept of the fruit products industry demands the utilisation of the raw produce specifically grown for the purpose. (Para 54).

11. Efforts should be made to produce more dehydrated vegetables like Hima peas for export. (Para 55).

12. Efforts should be made to get the ocean freight for fruit and vegetable products reduced. While the rate from Australia to U.K. is 169 sh. per 40 c.f., that from India to U.K. is 195 sh. This discrimination should be removed. (Para 56).

13. Efforts should be made to introduce new items of fruits and vegetable products for export. These are tomato paste, pineapple products, fruit juice powders, dehydrated onions, mango cereal flakes, papain and pectin, neera, mango juice, preserved litchi bulbs, guava, raspberry etc. (Para 57).

14. An export target of 5,000 tonnes per annum of fruit and vegetable products may be fixed for achievement by the end of the Fourth Plan as against the existing exports of 3249 tonnes. (Para 58).

APPENDIX I (a)

Quantum of Exports of Citrus Fruits

(Kilograms)

Destination 1	1957-58 2	1958-59 3	1959-60 4	1960-61 5	1961-62 6	1962-63 7	1963-64 8
			1. MANDARINES				
Kuwait .	1,880	..	..	..	..	..	..
Trucial Oman	1,016	..	..	..	..	360	..
Others . .	..	..	..	426	..	..	..
Total .	2,896	..	..	426	..	360	..
			2. ORANGES				
Bahrein Island	1,20,650	1,82,067	99,162	91,114	33,385	1,76,382	1,52,000
Kuwait .	8,992	7,163	12,446	3,440	2,500	3,717	20,290
Trucial Oman	9,398	18,999	27,838	..	8,890	56,921	62,926
Pakistan .	64,719	..	57,251	13,71,987	13,09,608	32,79,066	14,12,410
Ceylon . .	5,893	762	762	5,145	..	423	..
Saudi Arab .	37,033	77,876	13,818	1,982	1,460	4,880	1,915
U.K. . .	..	..	..	21,740	..	..	16
Others . .	11,176	1,118	2,337	1,37,395	24,49,146	4,512	9,040
Total .	2,57,861	2,87,985	2,13,614	16,32,803	38,04,989	35,25,901	16,58,597
			3. TANGERINES				
Pakistan .	813	..	..	..	..	..	..
Muscat . .	152	..	..	..	..	..	..
Others . .	51	152	711	772	90	..	..
Total .	1,016	152	711	772	90	..	..

APPENDIX I (a)—contd

(Rupees)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
1	2	3	4	5	6	7	8
			4. GRAPE FRUIT				
Bahrein Island	9,652	21,387	15,291	439	6,010	5,415	24,702
Saudi Arabia	..	51	153	14,392	..	20	..
Others . .	..	203	152	..	3,297	1,303	1,038
Total .	9,652	21,641	15,596	14,831	9,307	6,738	25,740
			5. LEMONS				
Pakistan .	..	..	1,880	2,715	12,308	790	22,743
Nepal .	102	305	660	51	..	1,808	1,290
Iran . .	..	..	..	1,140	..	..	..
Afghanistan .	102	102	4,013	..	19,227	10,681	12,244
Others . .	304	863	203	34,103	55,215	1,030	147
Total .	508	1,270	6,756	38,009	86,750	14,309	36,424
			6. LIMES				
Bahrein Island	4,420	1,219	1,118	1,400	..	720	..
Trucial Oman	3,708	5,842	17,526	..	..	795	..
Saudi Arabia	5,588	305	101	..	..	..	..
U.S.S.R. .	..	..	..	3,13,700	..	..	..
Pakistan .	..	..	..	3,686	1,300	..	..
Others . .	1,880	1,118	5,080	14,811	4,367	5,437	4,226
Total .	15,596	8,484	23,825	3,33,597	5,667	6,552	4,226
			7. OTHER CITRUS FRUITS				
Bahrein Island	914	5,690	203	3,384	3,720	500	400
Trucial Oman	1,930	1,829	1,524	..	..	2,583	3,030
Kuwait .	2,946	965	711	..	..	295	..
Saudi Arabia	..	1,981	254	..	..	10	570
Others . .	661	..	497	2,388	2,213	1,545	100
Total .	6,451	10,465	3,099	5,772	5,933	4,933	4,100

N.B.—Separate figures for the period prior to January 1957 are not available.

Source—Monthly Statistics of the Foreign Trade of India.

सत्यमेव जयते

APPENDIX I (b)

Value of Exports of Cirtus Fruits

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
1	2	3	4	5	6	7	8
			1. MANDARINS				
Kuwait	1,050	..	..	..	..	..	..
Trucial Oman	1,029	..	..	..	..	280	..
Others	..	..	6	489	..	..	..
Total	2,079	..	6	489	..	280	..
			2. ORANGES				
Bahrein Island	84,275	1,09,661	69,980	86,62,866	25,313	1,25,821	11,142
Kuwait	6,006	4,289	7,540	3,350	2,010	2,749	9,859
Trucial Oman	6,486	13,519	16,188	..	2,553	45,438	43,276
Pakistan	27,810	13	34,780	8,06,331	4,85,745	9,61,554	3,10,665
Ceylon	3,453	288	798	8,231	..	366	..
Saudi Arabia	23,961	50,728	9,730	2,988	1,160	3,816	1,476
U.K.	..	..	19	32,680	..	..	26
Others	11,097	1,758	3,164	83,200	8,52,901	6,040	10,915
Total	1,63,088	1,80,256	1,42,199	10,23,414	13,69,682	11,45,784	4,87,359
			3. TANGERINES				
Pakistan	400	..	..	..	..	..	..
Muscat	939	..	..	..	..	..	..
Others	30	102	530	1,387	60	..	..
Total	1,369	102	530	1,387	60	..	..
			4. GRAPE FRUITS				
Bahrein Island	4,849	18,648	11,084	853	5,815	5,194	21,293
Saudi Arabia	..	22	101	11,536	..	30	..
Others	79	188	97	..	4,077	1,262	1,017
Total	4,928	18,858	11,282	12,389	9,892	6,486	22,310
			5. LEMONS				
Pakistan	..	..	2,223	391	7,278	456	21,891
Nepal	133	544	820	30	..	1,963	1,941
Iran	..	..	..	1,500	..	..	..
Afghanistan	360	262	4,708	..	23,295	14,280	16,080
Others	255	641	178	37,582	41,196	1,431	241
Total	748	1,447	7,929	39,503	71,769	18,130	40,153

सत्यमेव जयते

APPENDIX I (b)—contd

(Rupees)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
1	2	3	4	5	6	7	8
6. LIMES							
Bahrein Island	2,257	650	366	1,400	..	443	..
Trucial Oman	3,289	5,289	2,137	..	..	648	..
Saudi Arabia	4,719	389	126	..	..	..	..
U.S.S.R. .	..	..	..	8,64,758	..	..	..
Pakistan .	..	..	..	2,616	1,045	..	..
Others . .	2,087	1,294	7,784	17,095	4,651	12,633	5,602
Total .	12,352	7,622	10,413	8,85,869	5,696	13,724	5,602
7. OTHER CITRUS FRUITS							
Bahrein Island	476	3,637	127	1,308	8,439	345	351
Kuwait .	1,495	491	333	..	..	241	..
Trucial Oman	1,040	1,191	919	..	..	1,988	2,289
Saudi Arabia	26	1,146	160	..	..	16	570
Others . .	1,496	47	478	1,676	1,838	626	93
Total .	4,533	6,512	2,017	2,984	10,277	3,216	3,303

N.B.—Separate figures for the period prior to January 1957 are not available.

Source—Monthly Statistics of the Foreign Trade of India.

APPENDIX II (a)

Quantum of Imports of Citrus Fruits into India

(Kilograms)

Name of the Country	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
1. GRAPE FRUITS							
United Kingdom	51	51	..	..	..	..	..
Pakistan .	..	..	..	6,000	6,718	..	..
Others	..	..	..	2,986	5,595	..	..
Total .	51	51	..	8,986	12,313	..	..
2. LEMONS							
Malaya .	7,315	..	..	..	..	..	..
Australia .	508	..	..	..	..	..	..
Others .	..	..	..	..	..	..	..
Total .	7,823	..	..	..	..	..	..
3. OTHER CITRUS FRUITS							
Pakistan .	0,993	35,662	..	5,46,686	61,400	4,21,293	1,39,116
Afghanistan	..	..	..	3,414	..	..	..
Others .	..	..	..	7,972	5,117	..	..
Total .	1,70,993	35,662	..	5,58,072	66,517	4,21,293	1,39,116

Source—Monthly statistics of the Foreign Trade of India.

APPENDIX II (b)

Value of Imports of Citrus fruits

(Rupees)

Name of the country	1957-58	1958-59	1959-60	1960-61	1961 62	1962-63	1963-64
			1. GRAPE FRUITS				
United Kingdom	110	112	..	..	..	..	..
Pakistan .	..	..	..	2,867	1,610	..	..
Others . .	..	..	..	860	1,559	..	..
Total .	110	112	..	3,727	3.169	..	..
			2. LEMONS				
Malaya .	7,819	..	..	..	..	..	..
Australia .	1,000	..	..	..	..	..	..
Others .	..	..	..	..	..	..	..
Total .	8,824	..	..	..	..	..	..
			3. OTHER CITRUS FRUITS				
Pakistan West	68,149	13,918	..	2,28,523	33,652	1,11,563	47,409
Afghanistan .	..	..	..	1,800	..	..	..
Others .	..	..	12	34,278	1,507	..	..
Total .	68,149	13,918	12	2,33,751	35,159	1,11,563	47,409

Source—Monthly statistics of the Foreign Trade of India.

सत्यमेव जयते

APPENDIX III

Quantum and Value of Exports of Mangoes from India

Quantity : Metric tons
Value : Rs. in lakhs

Country	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
U.K.	1	11	31	1	1	23	47	0·02	0·16	0·61	0·01	0·03	0·62	0·84
Bahrein Island	155	177	232	140	245	241	189	1·23	1·71	2·46	1·51	2·39	1·97	2·26
Kuwait	170	269	374	167	641	772	406	1·62	2·78	3·75	1·77	6·16	6·38	5·33
Trucial Oman	254	14	51	3	62	143	102	0·19	0·16	0·49	0·03	0·48	1·13	1·33
Saudi Arabia	56	117	95	19	18	54	23	0·72	1·22	1·33	0·36	0·36	0·70	0·38
Aden	44	47	73	13	17	32	37	0·73	0·71	0·94	0·24	0·28	0·48	0·69
Pakistan	1	Neg.	19	742	333	259	714	0·01	Neg.	0·16	4·19	1·81	2·00	4·30
Singapore	102	386	129	208	110	97	13	0·43	1·49	0·66	0·86	0·72	0·50	0·10
Malaya	102	432	164	90	16	..	17	0·41	1·63	0·76	0·40	0·12	..	0·10
Muscat	7	7	6	Neg.	..	4	7	0·06	0·09	0·06	0·01	..	0·07	0·11
Iraq	7	3	1	..	..	1	1	0·09	0·04	0·01	..	..	0·01	0·01
Iran	..	..	Neg.	2	..	1	Neg.	..	..	Neg.	0·05	..	0·01	0·01
Others	23	6	13	679	666	176	39	0·25	0·07	0·31	6·94	6·67	1·34	0·76
Total	932	1,469	1,118	2,064	2,109	1,803	1,595	5·74	10·06	11·54	16·35	19·02	15·21	16·22

APPENDIX IV

Exports of Bananas and Plantains (Fresh)

Quantity Metric tons
Value : Rs. in lakhs

Destination	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Bahrein Island	1,472	691	793	1,250	3·60	1·51	2·16	3·82
Kenya	..	..	216	..	..	..	0·55	..
Kuwait	3,461	3,601	3,465	3,634	7·46	10·56	9·59	10·97
Pakistan West	6,489	1,377	5,941	2,285	19·78	3·91	16·89	8·04
Trucial Oman	346	632	697	712	0·64	1·70	2·11	2·12
Saudi Arab	244	384	154	102	0·73	1·06	0·48	0·41
Others	1,077	397	3	2,748*	3·88	1·02	0·03	10·68*
Total	13,089	7,082	11,269	10,731	36·09	19·76	31·81	36·04

*The important countries are as under:—

	Quantity	Value
U.S.S.R.	1,200	4·82
Italy	1,203	4·89
Muscat	06	0·86
Others	39	0·11
Total	2,748	10·68

सत्यमेव जयते

APPENDIX V

Exports of Fruit and Vegetable Products from India

Quantity: Metric tons
Value: Rs. in lakhs

Commodity	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1	2	3	4	5	6	7	8	9
A. Preserved fruits and Fruit Preprations—								
(1) Preserved fruits whole or in pieces with or without added sugar, etc.—								
(*i*) Apricot etc. canned or not	Neg.	0·01	16	0·44	6	0·20	8	0·28
(*ii*) Pineapples canned or not	..	..	1	0·02	..	..	..	..
(*iii*) Other canned or bottled fruits not elsewhere specified	132	2·15	190	2·55	3·4	4·91	255	4·15
(*iv*) Fruits candied or crystallized	89	1·28	61	1·20	29	0·77	44	1·15
(*v*) Other sorts	44	1·61	229	2·32	258	3·12	133	1·99
Total of (1)	265	5·05	497	6·53	607	9·00	440	7·57
(2) Jams, Marmalades, fruit jellies—								
(*i*) Jams, Jellies, marmalades canned etc.	10	0·15	11	0·28	6	0·18	9	0·22
(*ii*) Others	31	0·85	65	1·84	47	0·90	54	1·33
Total of (2)	41	1·00	76	2·12	53	1·08	63	1·55
(3) Fruits juices imfermented etc.—								
(*i*) Juices of apricots etc.	4	0·13	7	0·19	2	0·04	41	0·65
(*ii*) Fruit juices, syrups etc.	16	0·37	49	1·12	84	1·68	394	5·85
(*iii*) Others	5	0·14	17	0·52	30	0·53	52	0·85
Total of (3)	25	0·64	73	1·83	116	2·25	487	7·35
Total (A)	331	6·69	646	10·48	776	12·33	990	16·47

APPENDIX V—contd

1	2	3	4	5	6	7	8	9
B. Preserved vegetable & vegetable preparation—								
(1) Vegetable dehydrated—								
(*i*) Tomato onion etc.	..	..	2	0·02	Neg.	Neg.	Neg.	0·01
(*ii*) Other sorts	47	0·64	29	0·49	32	0·67	16	0·32
Total of (1)	47	0·64	31	0·51	32	0·67	16	0·33
(2) Vegetables preserved or prepared except dehydrated in air tight containers—								
(*i*) Banana pickles	Neg.	0·02	6	0·15	1	Neg.	2	0·04
(*ii*) Mango pickles	1,039	19·56	1,205	22·86	1,336	25·17	1,293	24.29
(*iii*) Sauces	6	0·12	2	0·06	3	0·11	3	0·15
(*iv*) Picles, chutneys, condiments etc.	722	15·63	490	11·69	662	15·09	653	15·8
(*v*) Soups	Neg.	Neg.	..	..	..	..	Neg.	0·01
(*vi*) Potatoes canned	52	0·17	..	..	..	..	..	..
(*vii*) Tomatoes canned	2	0·03	Neg.	0·01	..	..	4	0·01
(*viii*) Mushrooms Borussels, Sprouts etc., canned	3	0·15	13	2·36	15	6·83	18	9·82
(*ix*) Other vegetables canned	65	1·05	108	1·78	193	3·96	244	4·39
(*x*) Vegetables curried	1	0·01	1	0·01	Neg.	Neg.	5	0·09
(*xi*) Other sorts	4	0·15	7	0·13	5	0·12	16	0·13
Total of (2)	1,894	36·89	1,832	39·05	2,215	50·38	2,238	54·73
(3) Vegetables preserved or prepared not in air tight, containers	3	0·09	1	0·04	12	0·20	5	0·08
Total (B)	1,944	37·61	1,864	39·60	2,259	51·25	2,259	55·14
Total A & B	2,275	44·30	2,510	50·08	3,035	63·58	3,249	71·61

Neg.—Negligible.

CHAPTER XVII

WALNUTS

1. Walnuts are grown in India in the mountainous regions of Jammu and Kashmir, Uttar Pradesh, Himachal Pradesh and Punjab. Quality walnuts are produced in Jammu and Kashmir only. The total production of walnuts in India is estimated at 12 to 14 thousand metric tons per annum.

EXPORTS

2. Thin and Kaghzi walnuts seldom enter export trade because of a well-developed internal demand. Hard nuts are consumed in the producing areas themselves. Only medium types enter overseas markets, because of their ability to withstand rough transit and moderate prices. Statistics showing the annual volume and value of exports of walnuts from India during the decade ending 1963-64 are given in Appendix I. The annual volume of walnut exports has fluctuated between 3 thousand and 5.6 thousand metric tons during this period. Till 1956-57 it rose and fell alternately and, thereafter, it registered marked advances for two years in succession. In 1959-60 it fell abruptly to 2959 tonnes, or, by 43 per cent, the lowest of the period. It shot up by 87 per cent in 1960-61 and touched the peak level with 5532 tonnes. Thereafter, it had been slightly declining till 1962-63 and recovered last year. Our average annual exports during the last 3 years came to about 42 per cent of the production.

3. We earned, on an average, about 142 lakh rupees of foreign exchange per year during the last 3 years from the export of walnuts. The annual earnings have fluctuated between about 88 lakh Rupees and 175 lakh rupees during this decade. The total earnings depend considerably on value per ton (export prices) as these also fluctuate widely from year to year. The unit value has ranged between Rs. 2193 and Rs. 3160. There was a tendency till 1957-58 for the unit value to decline with rise in volume and to rise when the volume shrank. Perhaps the overseas demand used to be stationary and, therefore, the effect of supplies used to be prominent. In later years, this tendency seems to have been checked. In 1960-61 we not only raised our volume by 87 per cent but also earned about Rs. 200 more on each tonne exported. This was, thus, a very favourable year for exports. The factors which made this possible may be examined with a view to finding out whether advantage can be taken of them for formulating export policies.

4. The Appendix II shows the relative importance of the countries leading in the imports of Indian walnuts during the years 1957-58 to 1961-62 (annual average) and 1962-63 and 1963-64. By far the largest purchaser of our walnuts has been the U.K. which accounted for 58 per cent of our exports of walnuts, on an average, during the years, 1957-58 to 1961-62, other important customers are Canada and U.S.A. which together absorbed about one fourth of our exports. The relative importance of these countries declined slightly in 1962-63 and that of other countries went up. In 1963-64 there was a recovery in the case of U.K. but not in other cases. The relative contribution of U.K. to our foreign exchange

earnings from walnuts is lower and that of Canada and U.S.A. much higher than their respective shares in the volume, reflecting the relative unit values of walnuts exported to these countries.

EXPORT PROMOTION

5. **Demand**—Indian walnuts in-shell and shelled are sold overseas markets at Rs. 2 to Rs. 2.25 and Rs. 5.80 to Rs. 6.00 per kilogram respectively, as against Rs. 3.00 to Rs. 3.25 for in-shell and Rs. 8.00 to Rs. 10.00 per kilogram for shelled walnuts fetched by other walnut producing countries. The main reasons why Indian walnuts are ranked inferior and sold at lower prices are lack of proper cleanliness and absence of proper grading of the produce exported. If the exporters clean and grade the produce, Indian produce would fetch better prices.

6. There is need to pay increased attention towards uncoventional markets like Switzerland, Sewden, Holland, West Germany and Austria who import substantial quantities of walnuts. East European countries, U.S.S.R. and Middle Eastern countries also offer potentialities of export.

7. Indian walnuts are seldom sold as Indian walnuts in the importing countries. Walnuts in-shell and shelled bought from India are further cleaned, graded and packed and sold under the packers' trade names to the consumers. End-use industries like confectionery units and bakeries directly get their requirements from the importers and wholesalers and sell these goods in processed forms. Thus, consumers' preference is almost confined to the importers' level only. Some of the Indian shippers, of late, have started popularising their brands amongst importers through commercial papers. There is a definite need for popularising and creating strong consumers preference for Indian walnuts amongst the actual users. Popularisation of the Indian walnuts can be done through participation in foreign fairs, distribution of small samples and gift packets, display of samples, publicity through newspapers, ladies' magazines, commercial circulars, newsletters and other modern advertising media. In the case of new markets, the industry should also introduce and popularise ready—for—use and attractive consumers' packs of in-shell walnuts and roasted and salted kernels.

8. The disposal of brown-coloured kernels is a constant headache to the walnut industry. Australia is the only potential buyer of this type of walnuts. The business of brown coloured kernels is rather unremunerative. There is nothing basically wrong with these kernels except their unattractive colour. They are as nutritive and palatable as the light and amber ones. The colour prejudice should be removed through consumers education programme. The industry should find out potential end-users like backeries and confectionery industries, chocolate and cream manufacturers and persuade them to this grade of shelled walnuts for greater profits because, in there case the colour does not matter much. In the new markets also the industry should try to build up markets of brown kernels.

SUPPLIES

9. The other substitutes like almonds are getting scarce and expensive day-by-day and the end-using industries, viz., salters, confectioners, bakers, ice-cream manufacturers, etc. are developing rapidly. Kaghazi in-shell walnuts are sold at the rate of Rs. 3.00 to Rs. 3.50 or Rs. 4.00 per kg. in the internal markets, whereas the foreign prices are substantially lower than this. The result is that the Kaghzi walnut does not enter the export trade.

Once a few trial consignments of this superb quality nuts are sent to foreign markets, it will generate a great demand. But to divert this nut from the home to the overseas markets, considerable amount of subsidy on the exports would be necessary in the initial stages.

10. A very important point to be taken note of here is that the domestic demand is reducing bit by bit the exportable surplus. Internal and international demand for in-shell and shelled walnuts is outpacking the supply. With the socio-economic advancement and the spread of education, global demand for this commodity is likely to develop fast. If effective and timely remedial measures are not taken to enlarge walnut production, a stage may arrive soon when the surplus may vanish altogether and the country may be deprived of valuable foreign exchange.

11. It is, therefore, essential to step up production by improving the yield through the adoption of appropriate agronomic practices, introduction of prolific varieties and extending the cultivation to new areas.

12. In Kashmir, walnut trees are grown in a scattered manner on the periphery of the villages or on the waste lands and are seldom raised as a plantation crop. Walnuts do not encroach on cropped land and, once planted, continue to yield fruits for a number of years.

13. Walnut wood is a prized timber and poor peasents are easily led away to part with the walnut trees for a few hundred rupees. The recent establishment of a State-financed private ply-wood factory in Srinagar engaged in the manufacture of walnut-veneers is an added source of danger to the walnut trade.

14. The growers of Jammu and Kashmir are fully aware of the profitability of walnut cultivation and, with a little incentive and propaganda, they can be motivated to cultivate this plant on village waste lands, foot-hills eroded lands, river banks, road avenues etc. Cultivation may also be extended in the hilly districts and border areas of the Punjab, Uttar Pradesh, Himachal Pradesh, Assam, West Bengal and Manipur. A proposal has recently been made for growing walnuts on 1000 acres of waste-land in Himachal Pradesh. A similar proposal is under consideration by the Jammu and Kashmir Government. Effective organisation for the collection and remunerative disposal of walnuts needs to be set up in new and prospective areas like Kulu Valley, Himachal Pradesh and hilly districts of Uttar Pradesh, where scattered walnut trees exist, so that the producer's enthusiasm may not be lost in the early stage of development.

15. Efforts have been made by the State Governments concerned to set up large walnut plantations in the forest areas for several decades. But the majority of the trees planted belong to the hard-nut strain. If only good nut-bearing varieties of walnuts are raised, as has been successfully done in the case of cashewnuts in the Madras State, the country could easily make a leap forward. The walnut-producing States should immediately conduct a survey of acreage (if possible, variety-wise) and production of walnuts. Thereafter, these estimates may be collected after every ten years as, without these statistics, any scientific plan of augmenting production is hardly possible.

16. While the technique of walnut production out-side India has undergone radical and revolutionery transformation resulting in the reduction of the bearing age and the tree-size and improving the fruiting capacity and the quality of produce etc., our producers still cling to the

old traditional methods of planting seedlings. Some State Governments have, of late, started evincing an interest in this direction and the programme can set a filip, if the research and extension wings are geared to extend technical help and to supply grafted and budded plants of quality walnuts at subsidised prices to cultivators.

17. The bulk of the walnuts grown for export is obtained from seedling trees which not only take an inordinately long time to bear fruit but also yield nuts which vary in quality. There is, therefore, need to undertake planting of trees propagated from selected, superior, high-yielding and regular-bearing scion varieties (with desirable nut characters) grafted on suitable hardy rootstocks with a view to reducing the pre-bearing period, increasing the yield and improving the quality of the produce.

18. The seedling walnut tree being large and tall, a smaller number of trees can be accommodated on a given area compared to other nut and fruit trees. Besides, such trees render spraying and harvest operations arduous and expensive and hence the growers are not keen to extend the cultivation of this crop. Trees, which are not only smaller in size but also amenable to be growth on a smaller acreage, should be used for grafting.

19. Walnut trees take several years to bear fruit. The bearing period can be reduced by converting the existing healthy but unprofitable seedling trees, that yield inferior quality nuts, into better types by top-working them with scions drawn from superior sorts.

20. The I.C.A.R. has sanctioned certain schemes for Punjab, Uttar Pradesh and Himachal Pradesh. These schemes should be implemented expeditiously.

21. The Government should set up a Research Station for Walnuts at some suitable place in Jammu and Kashmir which may undertake studies and initiate research on various aspects of walnut cultivation and suggest suitable measures for effecting improvement in this sphere. This Station may also deal with research pertaining to other allied crops like almonds, pistachio, etc.

22. **Processing Procedure etc.**—Presently we are shipping 50 per cent of our exports in the form of in-shell walnuts. The season for the supply of in-shell walnuts is very brief, i.e. practically the month of October only. All the operations starting from nut harvest collection, auction, transport to ports, shipments etc. have to be completed within 30 days or so. The shippers, because of the hurry to fulfil their contracts, often enter into unhealthy competition which results in the sudden shooting up of prices and the defective preparation of goods for export. The trade in-shell walnuts, therefore, brings little gain to the industry. On the contrary, the trade of shelled walnuts is spread over a period of 6 months or so. Shelling also provides gainful employment to thousands. Shelled walnuts bring in more foreign exchange. The attempt should, therefore, be to gradually build up and enlarge the exports of shelled walnuts.

23. **Utilisation of Bye-products**—Efforts should also be made to utilize the bye-products. Shell waste, which is produced to the extent of 8 to 10 thousand tonnes annually, can be converted into valuable raw material for the manufacture of ply-wood, hard-boards, roofing tiles, paper, gule, lenolium, diluent of explosives and insectical dusts, retarders or anti-skid agents in the rubber tyre industry and fillers in plastics with very little investment. Oil, extracted from inedible kernels, can find industrial application as a vehicle of decorative finishes, quality cosmetics, toilet soaps etc.

The cake can be used as a concentrate for stock-feeding. Several thousand tons of green walnut, bulbs are being wasted annually. These can be utilized for the extraction of organic dyes and tanning agents which our industries need in substantial quantities.

24. The C.S.I.R. may be requested to undertake an intensified programme of research on export-oriented uses of the walnut bye-products.

25. **Quality Improvement**—At present the export consignments are inspected by commercial surveyors paid by the exporters. Numerous complaints about quality are received. There is thus need to enforce rigid quality control. Steps are being taken by A.M.A. to introduce quality control on exports.

26. The staff engaged in the grading and quality control of walnuts should also undertake extension education programme in the walnut producing areas and import theoretical and practical training to producers with regard to the preparation of better quality in-shell and shelled walnuts. They need be educated regarding the proper stage of picking, improved method of hulling, dehydration, shelling, sorting, packaging and storage etc. This will ultimately result in an overall improvement in quality. Growers need also be explained the loss involved due to the use of inferior lining materials and unseasoned wood for packaging.

DIFFICULTIES AND HANDICAPS SUFFERED BY THE TRADE

27. **Accommodation Facilities**—Walnuts are exported in two forms, shelled and un-shelled and the various stages of preparation, processing and packing require storage sheds, bleaching sections, drying yards, sorting, packing, shelling apartments, godowns etc. None of the units engaged in this business at present can be said to possess the requisite space for carrying out all these activities in a proper manner. The result is frequent complaints about the quality of the walnuts exported. It is, therefore, extremely important to examine the conditions under which these units are working and at least provide for their minimum needs.

28. **Bombay Town Duty**—The Bombay Corporation levies a town duty on shelled walnuts. All the consignments packed in wooden cases, crates or card-board boxes are stamped at Sion by the Bombay Municipal Corporation and town duty at the rate of 6¼ per cent *ad valorem* is collected on such goods. To provide an incentive to exports, this tax, after a nominal deduction is refunded to the trader on the production of the requisite export documents. The trade, however, feels that this procedure is cumbersome and time-consuming and results in the tying up of sizeable capital for a long time. The industry is financially most hard-pressed during the peak period of exports. If the procedure about the levy is changed and simplified, both the Corporation and the trade will stand to gain financially from increased exports. The traders' contention is that walnut kernels seldom enter the Bombay consumer's market and only whole nuts are consumed in the town. Whatever shelled walnuts arrive in Bombay may, therefore, be deemed to be meant for export. They perfer a non-refundable tax on the shelled walnuts even at an increased rate instead of the present levy which is refunded after a nominal deduction.

29. The question of reduction in and simplification of the procedure for the levy of Bombay Town duty on walnuts meant for export may be taken up with the Bombay Corporation. Meanwhile, efforts should be made to explore the possibilities of developing an alternative port, e.g., Kandla which is nearer to the producing areas of walnuts.

30. **Exchange Bank at Jammu**—Absence of an exchange at Jammu is a perpetual hardship to the walnut export trade and works as an impediment to the increased flow of exports. The State Bank of India can be persuaded to open an exchange counter at their Jammu branch for the benefit of the trade.

31. **Cold Storage**—Jammu is a hot place and, as such, the stored walnuts get easily spoiled due to infestation, oil-seepage, darkening and rancidity. The facilities available at Amritsar should be utilised and expanded, if necessary, for the benefit of the walnut trade. There is also need for setting up a cold storage plant for walnut at Miran Shah.

32. **Installation of a Dehydrator at Jammu**—The nut season hardly lasts for a month. Hulling, bleaching, drying etc. take much time. Sometimes cloudy and wet weather intervenes and lasts for several days or even weeks. All the bleaching and drying operations virtually come to a standstill during such periods. If weather remains wet for a long time, the merchants miss the sailing schedule and suffer heavily. Installation of a hot-air dehydrator at Jammu is likely to safeguard against bad weather and make for quick and complete dehydration of walnuts.

33. **Bleaching Powder and Packaging Papers**—The I.C.I. brand of stabilished tropical bleaching powder is being used for cleaning and bleaching whole nuts. Due to restricted imports, it is not freely available in the market. The requisite quantity of high potency and equally effective stabilised bleaching powder need be made available to the trade. Research need also be conducted to find out a better and economical process of bleaching walnuts.

34. Similarly, the trade has developed a tradition of using superior quality (imported) vegetable parchment or tissue or grease-proof paper or butter paper and craft paper for lining shelled walnuts. Use of any inferior substitute will not give the desired attractive appearance to walnut kernels. The industry need be assisted to obtain the minimum requirements of these papers or other equally good substitutes.

35. **Installation of a Fumigation Plant at Jammu and Delhi**—Large quantities of walnuts are stocked at Delhi, Jammu, Srinagar and Bombay. Walnuts, being highly oily and soft, invite early insect infestation. Methyl Bromide fumigation under vacuum keeps the stocks free of insect infestation for about a month. Installation of a fumigation chamber at Delhi and Jammu and improving fumigation arrangements at Bombay will help in keeping the walnut stocks free of insect infestation and will ultimately result in fewer complaints from overseas markets in this regard.

36. **Mechanisation of Walnuts Industry**—Tiny nuts, when mixed with large-sized nuts, invariably result in a reduction of grade and quality and ultimately lead to reduced returns and business disputes. If the same nuts are seived out and cracked mechanically i.e. exploded through the aid of ethylene gas, the resultant tiny kernels could be sold at prices at least 8—10 times higher than the price offered for the parent material. Substantial demand exists for this premium quality kernels in overseas markets. All that the industry needs in this regard is the installation of a mechanical shelling plant at Jammu.

37. A large number of advantages like quick shelling, recovery of complete and cleand halves, utilisation of shell waste, quick and even grading, better bleaching and rapid dehydration etc. could be effected with the installation of mechanical graders, bleachers, dehydrators, shellers and

fumigation chambers. Mechanisation of walnut industry will ultimately lead to speedy and economical production, clean and better grading and attractive packaging which, in turn, will lead to increased exchange earnings. It seems necessary to invite an export from abroad in order to assist us in the mechanisation of this industry.

38. The Jammu and Kashmir State Forest Department need be moved to meet the seasoned fire wood requirement of the industry particularly for the manufacture of export boxes.

39. **Movement Priority**—In-shell walnuts are collected from remote areas of production and bleached, sorted and packed in a great hurry. Despite all attempts, sailings are, sometimes, missed. Movement of goods from Srinagar to Jammu is permitted on alternate days except in the case of fresh fruits and vegetables which can move daily in both directions. In view of the extremely short seasonal demand, which is very often further reduced due to rains and road breaches, the in-shell walnuts need be given the same priority for movement as fresh fruits and vegetables during the months of September, October and November. The Jammu and Kashmir State Transport authorities should be moved in this regard.

40. **Ocean Freight etc.**—Indian walnuts have to traverse long distances of difficult mountainous and land journey before embarking on their oceanic voyage. The cargo has to spend 20—30 days of high seas before reaching the shores of the importing countries. In the case of Canada, the problem becomes all the more difficult because the ports remain open only for a limited period and the merchandise has to be unloaded at the U.S. ports from where it is sent to different markets by road. Monthly (instead of fortnightly) sailings further aggravate the difficulties of the trade. New Zealand is another market which has not been exploited fully, primarily because of the long distance. As against this, our main competitors like Turkey, France, Italy, Yugoslavia and China are very fortunately placed. The European walnut growers ship their supplies within a matter of days. Similarly, China delivers its walnuts into the Canadian markets in a much shorter time. Thus, our rivals have a two-fold advantage—more time for and, therefore, better preparation of their exportable goods and less cost on land and sea freight. Both these increase their margin of profit and competitive power.

41. Longer transit time serves as a great deterrent both to the importers and the exporters of our walnuts. Sometimes, the shippers do not find it remunerative to sell walnuts in the distant markets because of the high transport cost. Their enthusiasm is further dampened by harmful efforts of long voyage, such as insect-pest infestation and quality deterioration which, sometimes, embitter trading relations and lead to financial disputes. Further, their capital is locked up for a fairly long time.

42. In order to enlarge and expand the walnut exports and encourage the exporters not to write off difficult and distant markets, it would be better to provide some cushioning effect as under:—

1. Fortnightly sailings of cargo vessels or passenger liners to Canada during the months of September-October to March-April may be arranged.
2. The risk of infestation, specially, in the case of walnuts shipped to U.S.A., Canada and New Zealand should be covered by the Export Risk Insurance Corporation as the Indian and the Foreign Commercial Insurance Companies decline to cover such risks.

3. Some monetary incentive be provided to Indian shippers for sending their goods under refrigerated conditions or in air-cooled chambers.

43. There is a two-way traffic from Srinagar to Banihal as well as from Batote to Jammu, but there is one-way traffic from Banihal to Batote. The result is a hold-up of goods traffic on this road. Passenger vehicles are permitted to proceed from Banihal to Batote without any difficulty. It is understood the Jammu and Kashmir Government will be willing to permit passenger buses to carry walnut consignments and goods' trucks, wholly note may, however, make slightly larger quantities of walnuts, both shelled road, if the exporters made a request to this effect.

44. **Tree-nut and Dry Fruit Development Board**—Apricot kernels, almonds, pinus cuddapah nut, pistachu nuts etc. are other tree nuts which, if developed on desired lines, can fetch valuable foreign exchange. In order to plan and devise ways and means to push up exports of these commodities, a Board composed of leading businessmen, Directors of Agriculture in States like Jammu and Kashmir, Uttar Pradesh, etc., representatives of the Forest Departments of these States may be set up in the Ministry of Food and Agriculture.

45. **Export Targets**—The production of walnuts is estimated to be between 11,800 and 13,800 tonnes per annum. The maximum exports took place in the year 1963-64 when we exported 5,614 tonnes. Walnut tree take about 10 years to bear fruit. We should take active steps to plant more trees in suitable areas but any spectacular increase in production would not be possible for about ten years. Some of the suggestions made in this note, may, however, make slightly large quantities of walnuts, both shelled and in-shell, available for exports. It would, therefore, be reasonable to aim at an export target of 6,500 tonnes of walnuts per year by the end of the Fourth Five Year Plan. If we succeed in bringing under walnut larger areas of land, we should expect to achieve substantial increase both in production and exports after about ten years.

CONCLUSIONS AND RECOMMENDATIONS

1. The factors which made it possible to earn higher rate of exchange, when the volume of exports rose by 87 per cent in 1960-61, should be examined with a view to finding out whether advantage can be taken of them for formulating export policies. (Para 3).

2. The exporters of walnuts should be persuaded to clean and grade their produce before export with a view to getting better prices. (Para 5).

3. There is need to pay increased attention towards unconventional markets like Switzerland, Sweden, Holland, West Germany and Austria who import substantial quantities of walnuts. East European countries, U.S.S.R. and Middle Eastern countries also offer potentialities of export. (Para 6).

4. Adequate publicity measures need be taken to promote exports of walnuts. The industry should introduce and popularise ready-to-use attractive consumers, packs of in-shell walnuts and roasted and salted kernels to capture new markets. (Para 7).

5. Efforts should be made to develop exports of brown-coloured walnut kernels. (Para 8).

6. We should try to create an overseas demand for our kagzi-in-shell walnuts. (Para 9).

7. The production of walnuts should be stepped up through the adoption of better agronomic practices, introduction of prolific varieties and extending the cultivation to new areas. (Para 11).

8. The cultivators should be persuaded to develop the cultivation of walnut plants on village waste-lands, foothills, eroded lands, etc. (Para 14).

9. An effective organisation need be set up for the collection and remunerative disposal of walnuts in the near and prospective areas like Kulu Valley, Himachal Pradesh and hilly districts of Uttar Pradesh, where scattered walnut trees exist. (Para 14).

10. There is need to raise good nut-bearing varieties of walnuts as has been successfully done in the case of cashewnuts in Madras State. (Para 15).

11. The walnut producing States should, to start with, conduct a survey of acreage (if possible, variety-wise) and production of walnuts. Thereafter, these estimates may be collected after every ten years as, without these statistics, any scientific plan augmenting production is hardly possible. (Para 15).

12. The research and extension organizations of the State Governments concerned need be geared up to extend technical help and supply grafted and budded plants of quality walnuts at subsidised prices to cultivators. (Para 16).

13. The schemes sanctioned by I.C.A.R. designed to effect improvements in the technique of cultivation of walnuts etc. in Punjab, Uttar Pradesh and Himachal Pradesh should be implemented expeditiously. (Para 20).

14. The Government should set up a Research Station for walnuts at some suitable place in Jammu and Kashmir which may undertake studies and initiate research on various aspects of walnut cultivation and suggest suitable measures for effecting improvement in this sphere. This station may also deal with research pertaining to other allied crops like almonds, pistachio etc. (Para 21.).

15. Attempts should be made to build up and expand our exports of shelled walnuts. (Para 22).

16. Efforts should be made to promote a better utilization of by-products of walnuts like shell waste, walnut oil, walnut cake etc. The C.S.I.R. may be requested to undertake an intensified programme of research on the export-oriented uses of walnut by-products. (Paras. 23-24).

17. The difficulties suffered by the trade, e.g., inadequate accommodation facilities, levy of town duty, fortnightly sailings, want of cold storages, absence of proper dehydrators, non-availability of bleaching powder, need be tackled. (Paras 27—43).

18. There is need to endorce rigid quality control on exports of walnuts. The staff engaged in the grading and quality control of walnuts should undertake extension education programme with a view to imparting theoretical and practical training to producers for the preparation of better quality in-shell and shelled walnuts. (Paras 25-26).

19. Apricot kernels, almonds, etc. are some of the tree nuts which need be developed. In order to plan and devise ways and means to push up exports of these commodities, a Board composed of leading businessmen, Directors of Agriculture in States like Jammu and Kashmir, Uttar Pradesh, etc., representatives of the Forest Departments of these States, may be set up in the Ministry of Food and Agriculture.

(Para 44).

20. A target of 6,500 metric tons of walnuts for export every year till the end of the IV Five Year Plan is suggested.

(Para 45).

APPENDIX I

Exports of Walnuts from India

Year	Quantity Tonne	Value (Rs. in lakhs)	Value per tonne (Rs.)
1954-55	5,324	116·74	2,193
1955-56	3,274	95·93	2,930
1956-57	3,726	96·98	2,603
1957-58	4,582	112·34	2,452
1958-59	5,152	126·35	2,452
1959-60	2,959	87·72	2,965
1960 61	5,532	174·83	3,160
1961-62	5,448	150·34	2,759
1962-63	5,144	128·32	2,495
1963-64	5,614	148·67	2,648

सत्यमेव जयते

APPENDIX II

Relative Importance of Principal Countries Importing Indian Walnuts

Country	Quantity						Value					
	1957-58 to 1961-62 (Annual average)		1962-63 Metric tons	Percentage to total	1963-64 Metric tons	Percentage to total	1957-58 to 1961-62 (annual average) lakh Rs.)	Percentage to total	1962-63 Lakh Rs.	Percentage to total	1963-64 Lakh Rs.	Percentage to total
	Metric tons	Percentage to total										
1	2	3	4	5	6	7	8	9	10	11	12	13
U.K. . . .	2,760	58	2,772	53·89	3,506	62·45	64·22	49	62·07	48·37	86·54	58·21
Canada . .	639	14	5,540	10·50	354	6·31	27·73	21	22·12	17·24	15·36	10·33
Australia . .	409	9	509	9·89	517	9·21	9·74	8	11·52	8·98	13·43	9·03
U.S.A. . .	523	11	337	6·55	363	6·46	20·31	16	12·39	9·66	14·67	9·87
Germany West .	106	2	130	2·53	141	2·51	1·79	1	2·20	1·72	2·77	1·86
Switzerland .	118	2	2	0·04	72	1·28	2·55	2	0·07	0·05	1·60	1·08
New Zealand .	33	1	23	0·44	11	0·20	1·28	1	0·80	0·62	0·54	0·36
Netherlands .	62	1	35	0·68	29	0·52	1·08	1	0·63	0·49	0·58	0·39
Others . .	85	2	796	15·48	621	11·06	1·61	1	16·52	12·87	13·18	8·87
Total .	4,735	100	5,144	100·00	5,614	100·00	130·32	100	128·32	100·00	148·67	100·00

By far the largest purchasers of our walnuts has been the U.K. which accounted for 58% of our exports of walnuts, or an average during the years, 1957-58 to 1961-62. Other—

CHAPTER XVIII

PULSES

Pulses occupy a very important place in the agricultural economy and in the diet of the people of India. Belonging to the leguminosae family and being rich in proteins, they are valuable for maintaining and enriching soil fertility and for providing proteins to the common man.

2. Pulses are generally consumed in the split form as dal. Some times the green pods are cooked as vegetables. Chooni, obtained as a bye-product during the process of splitting the whole pulses into dal, forms a favourite and nutritive concentrate in cattlefeed. Gram, Tur or Arhar, Moong and Masur are the important varieties of pulses grown in India.

EXPORTS

3. Next to cereals, the pulses are the only reckonable source of proteins in the diet of the majority of the people. To keep this commodity within the easy reach of the common man has, therefore, been one of the main considerations with the Government in deciding upon the export policy of pulses. Accordingly, the export policy of pluses has always been of a restrictive nature.

4. Commercial exports of pulses remained banned for more than a decade during and after the second World War. After this prolonged ban, exports of pulses came to be allowed for the first time in July, 1954, subject to an overall ceiling. A quota of 25 thousand tonnes of pulses was fixed out of which a quantity of 19 thousand metric tons, valued at Rs. 77.4 lakhs, was actually exported. This was followed by the release of another export quota of 15 thousand tonnes in February, 1955.

5. With a view to arresting the declining trend of prices then prevailing, a quota of 50,000 tons (other than Gram) was released later in the year. Besides, the export of gram and gram flour was allowed on a free licensing basis. The export policy was further liberalised in December, 1955. This pushed up the exports of pulses in 1955-56 to 75 thousand tonnes, valued at Rs. 2.85 crores. As a result, the domestic prices of pulses, specially of Masur and Mung; and the main export varieties, shot up in certain areas. In February, 1956, Masur was quoted at Rs. 20.50 per maund at Bombay as against Rs. 13.31 per maund in the corresponding month of 1955. The price of Mung ruled at Rs. 14.00 per maund at Kanpur and at Rs. 20.50 per maund at Bombay as compared with Rs. 9.62 and Rs. 19.44 per maund respectively in February 1955. The Prices of Arhar and Gram also registered substantial advances. Consequently, commercial exports of pulses were again banned in February, 1956. However, during 1957—61 limited exports of pulses were permitted for the use of Indian nationals abroad and to friendly countries like Ceylon and Mauritius on specific requests. During 1962, a quota of 25 thousand tons of pulses was released, the bulk of which was meant for export through the agency of the State Trading Corporation, only 5,250 tons having been reserved for private trade.

6. The export policy was liberalised during 1963. Consequently shippers can export pulses to all permissible destinations, except U.K., Mauritius and Ceylon subject to a maximum of 100 tons per shipping bill at a time. The exports to U.K., Ceylon and Mauritius can be done only by the National Agricultural Cooperative Marketing Federation.

7. The following statement gives the figures of exports of pulses from India during the years 1953-54 to 1963-64:—

TABLE 1

Export of Pulses from India during 1953-54 *to* 1963-64

Year	Quantities ('000 metric tons)	Value (Rs. in lakhs)
1953-54	Neg.	0·8
1954-55	19	77·4
1955-56	75	284·6
1956-57	8	46·7
1957-58	7	33·4
1958-59	4	31·6
1959-60	8	63·8
1960-61	8	58·1
1961-62	7	54·9
1962-63	10	83·0
1963-64	16	130·12

PRODUCTION

8. Statistics of annual acreage and production of all pulses in India during 1951-52 to 1963-64 are given in Appendix I.

9. The total area under all pulses increased from 46.4 million acres in 1951-52 to 60.1 million acres in 1959-60 or by about 29.5 per cent. During 1960-61 to 1962-63 the acreage under pulses was a little lower. The area under pulses constituted 19 to 21 per cent of the total area under foodgrains during this period. Gram is the most important pulse, accounting for about 36 to 42 per cent of the total acreage. Next comes Tur, covering approximately 10 to 13 per cent of the pulses acreage. These two constitute more than 50 per cent of the total area under pulses.

10. The production of pulses exhibited a steady increase through-out the First Five Year Plan period. By 1955-56, the last year of the First Five Year Plan, production recorded a rise of about 31.2 per cent over the production in 1951-52 and exceeded the First Plan target of 9.1 million tons by about 19.8 per cent. Gram contributed 77 per cent of the increase. The tempo of production was maintained in the year 1956-57. The production then was 11.6 million tonnes. In 1957-58, however, it declined sharply to 9.6 million metric tons. This was primarily due to a fall in the production of gram in almost all the gram-growing States. The decrease was particularly marked in the States of Madhya Pradesh, Punjab and Rajasthan and was attributable partly to a decrease in acreage and partly to adverse weather conditions, such as prolonged spells of drought, hailstorms and other natural calamities during the growing period of the crop. The fall in production in 1957-58 was, however, amply compensated in the succeeding year when the production stood at 13.1 million metric tons. The production has remained at a low level since, and has fluctuated between 11.6

and 12.6 million metrict tons, the average annual production during the years, 1960-61 to 1962-63 came to 11.9 million metric tons. The production target for the Third Plan has been fixed at 17 million metric tons. This means the production has to be stepped up by about 42 per cent. The target for the Fourth Plan has been provisionally fixed at 21 million metric tons.

EXPORT PROMOTION

11. There exists a good export market for Indian pulses in South-East and Western Asia and in some of the African countries. But, at present, when production is downward, the scope for exports of a commodity, which is an essential article of the common man's diet, is naturally limited. The first essential is, therefore, to step up the production of pulses substantially.

12. The yields per acre of pulses are very low. These are dry-farming crops. Special staff should be appointed in selected districts for propagating dry farming techniques in order to increase the production of pulses. A scheme for the intensification of production of pulses in 100 selected districts has been initiated by the State Governments at the instance of the Ministry of Food and Agriculture.

13. The production plans and efforts in respect of pulses should be oriented to further the interests of exports. Lentil, whole and split, is the most important pulse from the export point of view, accounting for almost 75 per cent of the exports of pulses during the years 1960-61 to 1962-63. U.P., Bihar and West Bengal are the most important States producing lentil. It is also grown in Rajasthan, Assam, Madhya Pradesh and Maharashtra. Efforts for increasing production of lentil should be concentrated in selected districts of these States, i.e. where such efforts are likely to yield better results. These are the districts of Patna, Shahabad and Gaya in Bihar, Murshidabad in West Bengal and Kheri, Pilibhit, Bahraich and Bareilly in U.P.

14. The following measures are recommended for increasing the production and exports of lentils:—

सत्यमेव जयते

(i) Some improved varieties of lentil have been evolved. The seeds of these varieties should be multiplied and supplied to the farmers.

(ii) To encourage the use of superphosphates, a subsidy of about 75 per cent may be given towards the cost of this fertiliser. The present subsidy of 25 per cent does not provide enough incentive to the farmer for using fertilizers in a rain-fed, low yielding crop like lentil.

(iii) Another step, which could augment the production of pulses, is their cultivation on lands which remain fallow for long periods, such as rice fallows. Extensive areas remain fallow every year in Orissa, West Bengal and Eastern U.P. during winter and spring after the harvesting of paddy.

(iv) Ceylon used to be the most important buyer till 1960-61. Since then we have been losing ground in Ceylon due to the competition from the low quality pulses exported by Syria and Lebanon. As the demand in Ceylon is for low quality pulses, we will have to devise measures to overcome the competition from the low quality pulses exported by Syria and Lebanon. The National Agricultural Cooperative Marketing Federation is exploring the possibilities of recovering the lost ground in Ceylon.

(v) Pulses are exported mostly from Bombay. As the producing centres are located mostly up country, the need for a concession in the railway freight may also be examined.

(vi) Different countries are used to different kinds of lentil. It may, therefore, be desirable to lay down quality standards on the basis of size, colour and permissible limits of foreign matter to suit the needs and preferences of the foreign buyer.

15. In order that exports may not lead to a rise in prices, yearly quotas should be fixed for export in the light of production and the volume of exports should be spread out evenly during the year.

EXPORT TARGETS

16. It is suggested that our targets of exports of pulses should be 50 thousand and 1 lakh metric tons by the end of the Third and Fourth Five Year Plans respectively.

CONCLUSIONS AND RECOMMENDATIONS

1. At the present juncture, when production is downward, the scope for the exports of pulses, which constitutes an important item of the common man's diet, is limited. The first requisite, therefore, is to increase the production of pulses. (Para 11).

2. There is also need to orient the production plans and efforts to export seeds. Lentil is the most important export pulse of India. U.P., Bihar and West Bengal are the most important States producing lentil. Efforts should be made to increase the production of lentil in the selected districts of these States. (Para 13).

3. The principal measures called for for increasing production are use of improved seeds and superphosphates. To encourage their use, the subsidy on superphosphates should be increased from 25 per cent to 75 per cent. (Para 14).

4. Besides, cultivation should be encouraged on lands which remain fallow for long periods, e.g. rice fallows in Orissa, West Bengal and Eastern U.P. (Para 14).

5. Measures need to be devised for overcoming the competition in Ceylon from low quality pulses exported by Syria and Lebanon. (Para 14).

6. The need for a concession in the railway freight may be examined. (Para 14).

7. Quality standards should be laid down. (Para 14).

8. Exports should be evenly spread out during the year so that prices do not rise unduly. (Para 15).

9. The target of exports should be 50 thousand tonnes for the end of the Third Five Year Plan and 1 lakh tonnes for the end of the Fourth Five Year Plan. (Para 16).

APPENDIX I

Acreage and Production of Pulses during the years 1951-52 *to* 1963-64

Year	Are ('000 acres)				Production ('000 Metric tons)			
	Gram	Tur	Others	Total	Gram	Tur	Others	Total
1951-52 . .	16,876	6,045	23,473	46,394	3,387	1,830	3,202	8,420
1952-53 . .	17,930	5,930	25,179	49,049	4,208	1,702	3,279	9,189
1953-54 . .	19,689	5,942	28,068	53,695	4,832	1,863	3,922	10,617
1954-55 . .	22,852	5,940	25,359	54,151	5,621	1,719	3,610	10,949
1955-56 . .	24,166	5,650	27,552	57,368	5,417	1,861	3,766	11,045
1956-57 . .	23,905	5,663	28,046	57,617	6,231	1,989	3,330	11,551
1957-58 . .	22,464	5,835	27,395	55,694	4,890	1,475	3,196	9,562
1958-59 . .	24,909	6,110	29,054	60,073	7,023	1,702	4,420	13,148
1959-60 . .	25,372	5,888	28,880	60,140	5,590	1,694	4,435	11,719
1960-61 . .	23,244	5,907	28,189	57,340	6,324	2,081	4,247	12,651
1961-62 . .	23,585	5,809	29,134	58,528	5,827	1,339	4,464	11,630
1962-63 . .	22,678	5,976	30,553	59,207	5,343	1,592	4,505	11,440
1963-64 . .	22,838	5,974	29,919	58,731	4,478	1,292	1,105	9,875

सत्यमेव जयते

CHAPTER XIX

ANIMAL (INCLUDING SHEEP) CASINGS

1. Animal casings are the bye-products of meat industry and are generally obtained from the intestines of cattle, sheep, goats and pigs. Small intestines are normally used for this purpose.

2. Our annual production of guts from small intestines is estimated at about 27,000 metric tons. The details of which are as under:—

Species	Small Intestines (metric tonnes)
Cattle	1,463·8
Buffaloes	1,830·5
Sheep & Goats	22,772·8
Pigs	855·5
Total	26,922·6

3. About ¾th of the production is derived from the small intestines of sheep and goats. Bombay State, the largest producer of guts, accounts for 18.9 per cent of the total production. U.P. comes next with 12.0 per cent. Other important areas of production are Madras (11.5 per cent), West Bengal (11.3 per cent), Andhra Predesh (10.3 per cent), Madhya Pradesh (9.4 per cent) and Rajasthan (6.6 per cent).

4. There is very little demand for guts for use as casings in India, whereas they are in great demand in foreign countries.

EXPORT TRENDS

5. **Animal Casings**—Statistics showing the annual quantum and value of exports of animal casings to various countries during 1955-56 to 1963-64 are given in Appendix I. We exported about 200 tonnes of animal casings during 1963-64 which is 36 per cent higher than that in the preceding year. It will be seen from the Appendix that the quantity of our exports had displayed frequent and sharp fluctuations (from (−) 81 per cent to + 120 per cent) from year to year, there being a sharp fall after a year or two of rise. The intakes of our animal casings by some importing countries display much sharper fluctuations than the over-all average. For example, the annual fluctuations in the case of West Germany ranged between (−) 99 per cent and + 1141 per cent and in the case of Switzerland between (−) 100 per cent and + 480 per cent. Spain has been by far the largest buyer of our animal casings, accounting for ¾th to 4/5th of the quantum during these years except in 1955-56 and 1956-57.

6. The value of the export of our animal casings in 1963-64 came to about 45 lakhs of rupees, of which over Rs. 39 lakhs or about 60 per cent came from Spain. The next largest contributor is Switzerland whose purchases accounted for 5 per cent to 8 per cent of the total during the last 3 years.

7. Statistics showing the value per metric ton of animal casings exported from India during 1955-56 to 1963-64 are given in Appendix II. The value per metric ton has ranged between about Rs. 16,000 in 1959-60 and Rs. 24,345 in 1962-63. The average value rose steadily during the years 1960-61 to 1962-63 after having fallen successively during the preceding 4 years (except for a slight rise in 1957-58). The unit values realized by our export of animal casings from different countries differ widely and ranged between about 10,000 rupees in the case of Italy and Rs. 34,000 in the case of Switzerland. In 1961-62, Japan and Switzerland stood at the top and West Germany, Portugal and Spain at the bottom. The unit value of exports fluctuates sharply from year to year in the case of all the importing countries. For example in the case of Spain, it varied between about 16 and 24 thousand rupees during this period. These trends indicate the possibilities of enhancing our earnings of foreign exchange by developing our exports to more remunerative markets.

8. **Sheep Casings (Salted)**—Statistics showing the annual quantum and value of the exports of sheep casings to various countries during 1957-58 to 1963-64 are given in Appendix III. We exported about 198 metric tons of sheep casings in 1963-64. The quantum rose steadily during the last 3 years and has been more than doubled since 1960-61. The annual fluctuations are not as wide as in the case of animal casings even making allowance for the shorter period of reference. Our exports of sheep casings to Japan have been mounting fast during these years. They rose by 97 per cent in 1961-62, by 45 per cent in 1962-63, and by 8 per cent in 1963-64. On the other hand, we have been losing ground in the West German market.

9. Sheep casings are exported to a larger number of countries than animal casings. Japan bought about 71 per cent of sheep casings exported by us in 1963-64. Between 1957-58 and 1963-64, Japan's in-take has risen from 12 per cent to 71 per cent and that of West Germany declined from 61 per cent to 5 per cent. Their relative importance has, thus, been completely reversed during this period.

10. Our exports of sheep casings fetched us foreign exchange to the tune of 76 lakh rupees in 1963-64. There was a marked rise in their value in 1961-62 and 1962-63.

11. Statistics showing the value per metric ton of sheep casings (salted) exported from India during 1957-58 to 1963-64 are given in Appendix IV. The annual value per metric ton has ranged from about Rs. 17,000 to about Rs. 43,000 during this period. A significant change has occurred in the relative unit values of animal and sheep casings during the last 3 years. The average export value of sheep casings, which used to be only a little higher than that of animal casings till 1960-61, exceeded that of animal casings by 64 per cent in 1961-62, by 78 per cent in 1962-63 and by 69 per cent in 1963-64. The average value shot up from about Rs. 19,000 to Rs. 33,000 in 1961-62 and further to Rs. 43,000 in 1962-63 but declined in 1963-64. In 1961-62 higher values were realised from every country, but the greatest rise occurred in the case of shipments to Japan. During 1962-63, average values of our consignments to Switzerland, Spain and Germany (East) fell by 27 per cent to 68 per cent and of those sent to other countries, rose by 5 per cent to 77 per cent. The highest rise occurred in the case of consignments to Italy.

EXPORT PROMOTION

12. **Slaughtering and Processing**—At present only a very negligible portion (a little over 1 per cent) of the production of casings is exported. There is ample scope for increasing the exports of animal casings (including sheep casings) even with existing production.

13. In the beginning of this century, we had a lucrative trade in the export of animal casings to U.S.A., Canada, U.K., Switzerland, Portugal, Holland, Denmark, etc. Some time in 1927 U.S.A. placed an embargo on the import of animal casings from India as the arrangements for ante and post mortem inspection in our slaughter houses did not come up to the requirements of the regulations in force in that country. Later, in 1938, the United Kingdom also prohibited the import of Indian Casings as their public health regulations required that all such imports should be accompanied by an official certificate from the country of origin.

14. The veterinary certificates at present issued in regard to exports of casings from India without certification in regard to ante and postmortem examination are being accepted in many of the other countries.

15. Indian exporters are very keen to extend their trade to the U.K. and the U.S.A., as the casings fit for sausage making fetch good prices in these countries. Unfortunately, because of the conditions prevalent in a great majority of the slaughter houses in India, it has not been possible to meet the requirements of these countries and extend our trade to them.

16. The manufacture of casings is not being done in our country on scientific and hygienic lines. At present most of the casing processing factories adopt primitive methods and their sanitary conditions are far from satisfactory. A scientific method of manufacture of sterilised animal casings has been developed at the Leather Research Institute, Madras. Preliminary inquiries made by them indicate that such casings can be acceptable even to West European countries. The manufacture and export of such casings should be encouraged.

17. There is no municipal or Government control over the processing and packing of casings. Each factory follows its own conventional methods. Processing of guts into casings is mostly done by hand. In the Scandinavian countries, usually the fermentation method of cleaning guts is used. This does not require elaborate accommodation and needs only some machinery for crushing and cleaning and thermostatically-controlled troughs for the immersion of casings. The processing of casings, though specialised job, does not require an elaborate set-up. The requirements consist of adequate accommodation at slaughter houses, provision of simple types of Scandinavian or American machinery for gut cleaning etc., provision of ample fresh water and thermostatic control to maintain water at different temperatures and provision of cold storage in the slaughter houses for use by casing manufactures.

18. If we could arrange at certain selected places like Bombay, Calcutta and Madras, veterinary inspection of animals at the slaughter houses and could earmark, as far as possible, the casings obtained from these slaughter houses for export, the export of casings could be stepped up.

19. Funds have been provided in the Third Plan for the modernisation of slaughter houses to a number of States. The Central Government had given an assurance that 100 per cent loans would be given for the execution of these schemes. Unfortunately, there has been very little progress in this direction. A recommendation for the modernisation of slaughter houses has been made separately in the chapter on meat and meat products. Once the slaughter houses are modernised and we begin to produce casings under hygienic conditions, we would be able to step up substantially our exports of casings. It is, therefore, essential that the programme of the modernisation of slaughter houses should be speedily carried out.

20. **Further Processing**—There are immense possibilities of further processing of guts. The preparation of surgical gut (cat-gut) is said to be solely in the hands of a foreign firm which does all the processing in India and exports the finished products to Switzerland for the purpose of sterilization, grading etc. The final product is used as cat-gut in many countries and India has to depend for its requirements of surgical cat-gut on imports from abroad. There is ample raw material available in the country for the manufacture of surgical cat-gut, if the technical know-how and equipment are made available to the Indian Industry.

21. Machinery required for the processing of guts is not expensive but has to be imported. Foreign exchange for importing this machinery should be made available.

22. **Quality Control**—A number of serious complaints about the quality of sheep casings exported to Japan and other countries from India have been received. The matter was gone into by the Ministry of Food and Agriculture recently and quality control on export of animal casings has been introduced with effect from February 1, 1965.

सत्यमेव जयते

CONCLUSIONS AND RECOMMENDATIONS

✓ 1. There are also possibilities of enhancing our foreign exchange earnings by developing exports of animal casings to more remunerative markets. (Para. 7).

2. There is ample scope for increasing the exports of animal and sheep casings. (Para. 12).

3. The manufacture and export of casings products under the method evolved by the Leather Research Institute should be encouraged. (Para. 16).

4. The programme of modernisation of slaughter houses should be speedily executed. (Para. 19).

5. There are immense possibilities of further processing of guts. Small amounts of foreign exchange, needed for important machinery for the processing of goods be made available to the processors. (Para. 20 & 21).

APPENDIX I

Exports of Animal Casings from India

Quantity : Metric tons

Year 1		West Germany 2	Italy 3	Japan 4	Spain 5	Portugal 6	Switzer-land 7	Other countries 8	Total 9
1955-56	. .	53·34	3·86	6·96	112·68	..	7·93	19·56	204·33
1956-57	. .	59·59	12·35	19·46	92·92	2·79	10·26	11·53	208·90
1957-58	. .	0·56	0·10	..	34·44	3·30	1·32	0·56	40·28
1958-59	. .	0·10	0·10	..	41·25	6·76	..	5·59	53·80
1959-60	. .	0·97	2·64	0·36	79·20	17·17	2·19	2·24	104·77
1960-61	. .	0·16	0·46	..	57·47	10·40	1·59	1·65	75·63
1961-62	. .	0·58	0·35	1·55	134·10	19·75	8·65	1·66	166·64
1962-63	. .	7·19	1·97	1·50	121·52	..	9·18	4·78	146·14
1963-64	. .	6·34	0·50	0·77	179·34	..	7·62	6·26	200·83
			Value :	Rs. in lakhs					
1955-56	. .	10·93	0·87	1·28	22·45	..	2·77	4·72	43·02
1956-57	. .	14·21	2·67	2·42	15·42	0·40	2·30	4·36	41·78
1957-58	. .	0·28	0·02	..	6·64	0·52	0·33	0·54	8·33
1958-59	. .	0·02	0·02	Neg.	8·56	1·43	..	0·62	10·65
1959-60	. .	0·23	0·33	0·06	12·44	2·71	0·33	0·47	16·77
1960-61	. .	0·03	0·14	..	10·83	2·58	0·37	0·31	14·26
1961-62	. .	0·11	0·07	0·43	26·52	3·90	2·36	0·18	33·57
1962-63	. .	1·95	0·64	0·41	28·68	..	2·71	1·18	35·57
1963-64	. .	1·79	0·05	0·25	39·22	..	2·50	1·64	45·45

सत्यमेव जयते

APPENDIX II

Value per tonne of Exports of Animal Casings from India

Value per tonne (Rs.)

Destination	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Germany West	20,485	23,845	51,010	16,745	23,751	17,818	19,147	27,127	28,262
Italy	22,580	21,634	17,178	22,745	12,390	31,256	20,286	32,753	10,000
Japan	18,406	12,417	..	..	17,896	..	27,494	27,274	32,470
Spain	19,924	16,598	19,264	20,739	15,709	18,840	19,777	23,607	21,869
Portugal	..	14,477	15,727	21,244	15,793	17,901	19,765	..	..
Switzerland	34,909	22,405	24,911	..	15,089	24,887	27,331	29,484	34,124
Other countries	24,149	37,821	97,295	..	20,880	18,892	10,655	24,653	26,198
Total .	21,054	20,002	20,678	19,797	16,009	18,855	20,148	24,345	22,600

APPENDIX III

Export of Sheep Casings (Salted) from India

Quantity (in metric tons)

Destination	Austria	Denmark	Germany East	Germany West	Italy	Japan	Spain	Switzerland	U.S.A.	Other countries	Total
1	2	3	4	5	6	7	8	9	10	11	12
1957-58	5·64	2·64	..	66·20	8·13	13·21	7·06	1·42	1·17	2·90	108·37
1958-59	5·44	1·12	..	34·44	11·38	36·58	0·97	5·33	0·15	4·27	99·68
1959-60	13·36	2·34	0·15	23·88	16·56	52·84	0·86	0·25	1·17	1·68	113·09
1960-61	2·71	4·47	0·77	18·53	14·65	45·66	..	0·74	..	2·84	90·37
1961-62	4·07	2·03	2·57	19·86	9·28	90·07	5·77	0·60	0·24	1·83	136·32
1962-63	6·52	1·07	Neg.	17·70	10·63	130·94	7·53	1·12	1·20	5·90	182·61
1963-64	3·11	0·30	..	10·31	18·92	140·78	4·38	1·75	0·04	18·03	197·87
Value : Rs. in lakhs											
1957-58	2·11	0·80	..	11·10	1·67	2·15	0·99	0·52	0·30	1·04	20·68
1958-59	2·06	0·20	..	7·58	1·86	5·81	0·24	0·86	0·03	1·55	20·18
1959-60	1·54	0·64	0·04	4·07	2·31	9·43	0·12	0·06	0·32	0·51	19·05
1960-61	1·06	0·91	0·24	3·88	1·74	8·41	..	0·29	..	0·77	17·30
1961-62	1·93	0·55	0·87	5·84	1·12	32·49	1·20	0·29	0·06	0·57	44·92
1962-63	3·34	0·49	Neg.	5·46	2·26	62·76	1·16	0·39	0·50	2·59	78·95
1963-64	1·65	0·12	..	2·97	3·55	59·05	0·68	0·49	0·01	7·99	76·51

APPENDIX IV

Value per tonne of Export of Sheep Casings (Salted) from India

Value per tonne (Rs.)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Austria .	37,505	37,923	11,556	39,160	47,421	51,217	53,058
Denmark .	30,276	17,537	27,418	20,425	27,056	46,126	40,000
Germany East	..	..	23,882	31,250	33,801	10,667	..
Germany West	16,770	21,998	17,059	20,915	29,413	30,871	28,807
Italy .	20,504	16,333	13,977	11,867	12,028	21,282	18,774
Japan .	16,280	15,892	17,845	18,414	36,065	47,932	41,880
Spain .	14,074	24,495	13,881	..	20,886	15,390	15,525
Switzerland .	36,468	16,075	25,732	39,592	48,975	34,434	28,000
U.S.A. .	25,611	19,783	27,131	..	26,783	41,419	25,000
Other Countries	35,843	36,317	30,575	27,099	31,209	43,924	43,073
Total .	19,087	20,246	16,848	19,141	32,955	43,236	38,130

CHAPTER XX

POTATOES PRODUCTION

Of all the food crops, potatoes are most abundantly grown in the world. The production of potatoes in some of the important producing countries of the world during 1961-62 is given below:—

TABLE 1

World Production of Potatoes

Country	Production (Thousand tonnes)
U.S.S.R.	84,310
Poland	45,203
Germany (East and West)	29,934
France	14,231
U.S.A.	13,317
Czechoslovakia	5,331
Netherlands	3,732
Italy	3,932
India	2,550
World Total—(including others)	280,600

(*Source* :—F.A.O. Production Year Book, 1962)

Thus, U.S.S.R., Poland, Germany, France and U.S.A. are the most important potato-producing countries of the world, accounting for about 62 per cent of the total production of the world. India is one of the leading potato-producing countries and is next only to Japan, so far as the countries of Asia and Africa are concerned.

2. The production figures of potatoes for the last 7 years ending 1963-64 for India are given below:—

सत्यमेव जयते

TABLE 2

Production of Potatoes in India

(Thousand tonnes)

Year	Production
1957-58	2,004
1958-59	2,348
1959-60	2,766
1960-61	2,744
1961-62	2,550
1962-63	3,336
1963-64	2,468

The important potato-producing States in India are U.P., Bihar, Assam, West Bengal, Madras, Maharashtra and Himachal Pradesh. Production stood at over 33 lakh tonnes in 1962-63 as against about 20 lakh tonnes in 1957-58 or about 65 per cent higher. There was an abrupt fall in 1961-62. The production picked up in 1962-63 but witnessed a decline last year.

EXPORT TRENDS

3. The chief potato exporting countries of the world are Netherlands, U.S.A., Canada, France and Denmark. The chief importing countries are France, U.S.A., U.K., Spain and Belgium. India's share in the international trade is almost insignificant. During 1961-62 her exports and imports formed only about 0.5 per cent and 0.1 per cent of the total world exports and imports respectively. We export both seed and table potatoes. The trends in the exports of each of these types of potatoes are discussed below separately.

4. **Seed Potatoes**—Statistics showing the annual volume and value of seed potatoes exported by us during the years 1957-58 to 1963-64 are given, country-wise, in Appendices I & II. The annual exports have been marked by violent fluctuations and have varied during this period from as little as 660 metric tons in 1958-59 to 6,817 metric tons in 1961-62 leaving out 1963-64 when there were practically no exports. Ceylon is the most important buyer of our seed potatoes, followed by Pakistan. The two together accounted for almost the entire exports during these years. During 1962-63 Ceylon accounted for 68 per cent and Pakistan for 31 per cent of our exports. Of the foreign exchange earned from the export of seed potatoes, Ceylon's contribution is lower than her share in the quantum. Country-wise, Pakistan's is higher. This is due to the relative unit values being Rs. 489 and Rs. 532 per metric ton for Ceylon as against Rs. 679 and Rs. 601 for Pakistan during 1961-62 and 1962-63 respectively. We earned about Rs. 37 lakhs from the export of seed potatoes in 1962-63 compared to about Rs. 3 lakhs during 1958-59.

5. **Table Potatoes**—Statistics showing the volume and value of our exports of table potatoes for the last six years ending 1962-63 are given country-wise, in Appendices III & IV. We exported 12,527 metric tons of table potatoes during the year 1962-63, valued at about Rs. 51 lakhs. The annual exports have risen steadily from 422 metric tons in 1957-58. By the end of the Second Plan they had risen to over 10,000 metric tons. They dwindled to 235 tonnes in 1961-62 but recovered considerably the very next year, when they came to about 8,000 tonnes. The abnormal decline in 1961-62 is attributable to the abrupt decline in the off-take by Ceylon which accounts for an over-whelming proportion of our exports. During the year 1961-62, Ceylon's off-take was only 108 tonnes, as against an average of 4,355 tonnes for the preceding four years. No other important country is a large purchaser of our table potatoes. The remaining quantities are exported to a number of countries, such as Switzerland in Europe and Trucial Oman, Muscat, Sudan etc. in Africa. Saudi Arabia used to import considerable quantities of our potatoes at one time, but has practically stopped purchasing them now. This needs investigation. The share of Ceylon in the foreign exchange earned from this source corresponds closely to her share in the quantum showing that the unit value of potatoes sent to Ceylon is comparable with that received from other countries.

6. **Imports**—We also import potatoes both for seed and edible purposes. We have not imported table potatoes since 1958-59 when we had imported a small quantity of 51 kg. Figures of annual imports of seed potatoes during the year 1957-58 to 1963-64 are given in Appendix V.

Our imports of seed potatoes have also been declining during the three years after 1959-60. From 2,658 tonnes in 1959-60, they came down to about 1,116 tonnes by 1962-63. The corresponding figures of foreign exchange paid are Rs. 18.8 lakhs and Rs. 7.9 lakhs last year, imports went up to 1,426 tonnes. All our imports of seed potatoes in 1962-63 and practically all in 1963-64 came from Burma. Small quantities used to be imported from Netherlands till 1960-61. Potatoes from Burma are greatly in demand, particularly in West Bengal.

7. **Possibilities of Further Processing**—In other producing countries, potato has become a major industrial feature and figures in several manufacturing industries including the distilling of power alcohol. The stage for industrial processing of potatoes, except for their being dehydrated for purposes of longer storage, has not yet reached in India. The export of dehydrated potatoes is, however, a promising line. The possibilities of setting up dehydrated plants in potato-producing areas should be examined.

8. **Export Promotion**—The quantum of potatoes, both seed and table, exported by India at present is negligible and is not even 1 per cent of her total production. As India is one of the leading potato-producing countries, next only to Japan, amongst the countries of Asia and Africa, there is a great scope for expanding the export trade of this commodity, particularly to the Afro-Asian countries.

9. Unfortunately, our yields of potatoes are the lowest amongst the important potato-growing countries of the world. The following table gives the yields of potato in the principal potato-producing countries during the year 1961-62:—

TABLE 3

Yields of Potatoes in certain countries

Country	Yield per hectare
	(Kilogrames)
India	6,900
Netherlands	28,100
Poland	16,000
France	16,100
U.S.A.	22,000
U.S.S.R.	9,500
Japan	17,700
Italy	10,400
Czechoslovakia	10,400

(*Source* :—F.A.O. Year Book, 1962).

सत्यमेव जयते

As stated earlier, our production of potatoes is about 25 lakhs tonnes. Our production could be substantially stepped up if we could increase our yields. Our aim should be to increase yields by intensive cultivation methods by about 5 per cent per year.

10. **Existing Export Policy**—Export quotas are released annually by the Ministry of International Trade. The quota for the year 1961-62 was 30,480 tonnes while the actual exports were 7,052 tonnes. The quota for the year 1962-63 was 22,000 tonnes while the actual exports were about 14,720 tonnes. These quotas are not announced and export licences continue to be issued by the Export Controllers at the ports without the

general public knowing the export quotas. In respect of a commodity the exports of which are short of the quotas. there is little justification for not announcing them. There is no reason why the export should be confined only to a few parties who come to know of the export quotas from the port Export Controllers. The announcement of quotas may attract enterprising new-comers to the potato export trade and it is, therefore, considered that the export quotas should be widely announced.

11. **Grading**—It has been reported that most of the exports of both seed and table potatoes are of sub-standard quality. For building up the export trade, it is essential that rigid compulsory quality control is exercised on the export of potatoes.

12. **Shipping**—The problem of securing refrigerated shipping space is not peculiar to potatoes alone. Our exports of other perishable commodities are also being affected for want of refrigerated shipping space. It is, therefore, essential that the Indian Merchant Fleet should acquire a few refrigerated ships for the export of fruits, vegetables and other perishables including potatoes. The State Governments should be requested to develop transport facilities in the potato-growing areas as there is a considerable spoilage of potato crop for want of these facilities.

13. **Potato Marketing Board**—It appears to be necessary to set up Potato Development and Marketing Board in the Ministry of Food and Agriculture so that the problems connected with the production, marketing and export of potatoes could be tackled in an effective manner. Potato is one of the crops in which low yields are responsible for poor export performance. It is a tragedy of Indian agriculture that uneconomic holdings, poor agricultural husbandry and low yield are not only contributing a heavy drain on India's economy in general but are also a handicap in improving the economy through increased foreign exchange earnings so necessary for rapid development. Unless bold measures are taken to increase the yield of agricultural commodities of export potentialities like potatoes the prospects of significant improvement in foreign exchange earning through the increased export of agricultural commodities are grim indeed.

14. **Export Targets**—Our exports could easily go up to 2 per cent of the total production by the end of the IV Plan period without affecting internal supplies. A target of export of 25,000 tonnes by the end of the Third Five Year Plan and 50,000 tonnes by the end of the Fourth Five Year Plan could be easily achieved if our production is stepped up. Exports of 50 thousand tonnes per year would earn foreign exchange worth Rs. 2.60 crores at current prices.

CONCLUSIONS AND RECOMMENDATIONS

1. Saudi Arabia used to import considerable quantities of Indian potatoes but has practically stopped importing them now. This needs investigation. (Para. 5).

2. There is scope for expanding our export trade in potatoes to Afro-Asian Countries. (Para. 8).

3. Efforts should be made to raise the yield of potatoes through intensive cultivation methods. Our aim should be to increase production by 5 per cent per year. (Para. 9).

4. At present export of potatoes is allowed within specified quotas which are not announced to the trade. These should be published so that prospective exporters may know the quantities released for export from time to time. (Para. 10).

5. Rigid compulsory quality control should be enforced on exports of potatoes. (Para. 11).

6. (a) The Indian Merchant Fleet should acquire a few refrigerated ships for the export of fruits, vegetables and other perishables including potatoes. (Para. 12).

(b) There is considerable spoilage of potato crop for want of transport facilities in the potato-growing areas. Transport facilities should be, therefore, developed in those areas. (Para. 12).

7. A Potato Development Board may be set up in the Ministry of Food and Agriculture to develop the production, marketing and export of potatoes. (Para. 13).

8. Efforts should be made to export potatoes to the extent of 2 per cent of production. Our aim should be to achieve a target of 25,000 metric tons by the end of Third Five Year Plan and 50,000 metric tons by the end of Fourth Five Year Plan. (Para. 14).

APPENDIX I

Volume of Exports of Seed Potatoes from India

(Metric tons)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Ceylon .	25	517	2,527	1,772	5,645	4,610	..
Pakistan .	1,736	125	1,484	36	1,124	2,096	..
Saudi Arabia .	..	6	10	..	..	..	..
Bahrein-Island	..	6	..	10	..	20	8
Trucial Oman .	..	3	13	10	30	11	17
Muscat .	..	3	1	..	..	..	Neg.
Others .	..	..	3	32	18	5	..
Total. .	1,761	660	4,038	1,860	6,817	6,742	25

APPENDIX II

Value of Exports of Seed Potatoes from India

(Rs. in lakhs)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Ceylon .	0·08	2·27	11·23	7·14	27·60	24·51	..
Pakistan .	10·18	0·60	7·92	0·17	7·63	12·59	..
Saudi Arabia .	..	0·02	0·04	..	..	..	..
Bahrein Island	..	0·02	..	0·04	..	0·07	0·03
Trucial Oman	..	0·01	0·04	0·05	0·17	0·05	0·08
Muscat .	..	0·02	Neg.	..	..	..	Neg.
Other Countries	..	..	0·01	0·11	0·08	0·04	..
Total .	10·26	2·94	19·24	7·51	35·48	37·26	0·11

APPENDIX III

Value of Export of Potatoes other than Seed Potatoes from India

(Metric tons)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Trucial Oman	34	23	109	178	28	264	286
Ceylon	246	2,790	8,861	9,877	108	7,118	11,889
Switzerland	..	..	..	24	..	..	..
Muscat	3	41	22	5	..	39	47
Saudi Arabia	136	60	65	18	8	16	9
Kuwait	..	6	28	5	10	143	25
Bahrein Island	..	38	42	143	2	266	259
Mauritius	..	61	8	75	..	5	..
Seychelles	..	6	3	1	..	5	6
Sudan	..	..	3	5	..	Nil.	..
Others	3	24	5	187	79	121	6
Total	422	3,049	9,146	10,518	235	7,977	12,527

APPENDIX IV

Value of Exports of Potatoes other than Seed Potatoes from India

(Rs. in lakhs)

Destination	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Trucial Oman	0·15	0·11	0·45	0·83	0·15	1·14	1·30
Ceylon	1·04	10·80	37·46	37·28	0·38	30·11	48·21
Switzerland	..	..	..	0·27	..	..	..
Muscat	0·01	0·10	0·10	0·02	..	0·20	0·21
Saudi Arabia	0·60	0·43	0·33	0·07	0·03	0·06	0·03
Kuwait	..	0·01	0·08	0·02	0·03	0·43	0·08
Bahrein Island	..	0·12	0·12	0·47	0·01	1·02	1·14
Mauritius	..	0·21	0·02	0·23	..	0·02	..
Sychelles	..	0·02	0·01	0·01	..	0·02	0·03
Sudan	..	..	0·01	0·02	..	..	..
Other countries	0·01	0·08	0·02	0·69	0·40	0·38	0·03
Total	1·81	11·88	38·60	39·91	1·00	33·38	51·03

APPENDIX V

Imports of Seed Potatoes into India (1957-58 *to* 1962-63)

Quantity (Metric tons)

Source	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Netherlands	5	3	15	27	..	..	..
Burma	..	2,490	2,641	1,364	1,335	1,116	1,413
Others	..	..	2	2	57	..	13
Total	5	2,493	2,658	1,393	1,392	1,116	1,426
Value (Rs. in lakhs)							
Netherlands	0·03	0·02	0·09	0·18	..	..	..
Burma	..	22·73	18·68	9·76	9·45	7·91	9·99
Others	..	..	0·02	0·02	0·32	..	0·07
Total	0.03	22·75	18·79	9·96	9·77	7·91	10·06

CHAPTER XXI

COCOA PRODUCTS

EXPORT TRENDS

1. **Quantity**—The cocoa products entering India's export trade are cocoa powder, cocoa butter and paste, chocolate confectionery and other chocolate preparations. A statement showing the quantity and value of cocoa products exported from India during 1960-61, 1961-62, 1962-63 and 1963-64 as well as their relative importance is given in Appendix I.

2. During 1963-64 India exported 323 metric tons of cocoa products valuing 9.8 lakh rupees. Cocoa powder was the most important of these products accounting for about 52 per cent of the total exports of these products. Cocoa butter and paste and chocolate confectionery accounted for about 13 per cent and 8 per cent respectively and the remainder comprised of other chocolate preparations. The quantum of our exports has been rising during the last three years. From 12 metric tons in 1960-61 it went up to 29 metric tons in 1961-62, 174 metric tons in 1962-63 and 323 tonnes in 1963-64. This has been brought about both by an expansion in the quantum of exports of existing items and by the development of new lines of export. In 1960-61 we exported only cocoa butter and chocolate confectionery. The quantities were 10 and 2 metric tons respectively. During 1962-63, the exports of these items rose to 20 metric tons each. But it is the addition of new products, namely cocoa powder and other chocolate preparations, which resulted in larger exports of these products. During 1963-64, the exports of cocoa powder went up from 92 to 168 metric tons and those of cocoa butter and paste and of chocolate confectionery from 20 metric tons each to 41 and 27 metric tons respectively. 42 metric tons of chocolate preparations were exported in 1962-63 and 87 metric tons in 1963-64.

3. **Value**—The following table shows the value per metric ton of chocolate products exported from India during these years:—

TABLE 1

Export of Cocoa Products

Value per tonne (Rs.)

Commodity	1960-61	1961-62	1962-63	1963-64
Cocoa Powder	..	2,750	4,717	3,327
Cocoa Butter and Paste	5,300	5,062	4,600	5,049
Chocolate Confectionery	5,000	5,000	6,250	2,852
Other chocolate preparations	..	..	1,690	1,529
Average for all the products	5,250	4,103	4,149	3,022

4. On an average, a metric ton of Cocoa product fetched 3022 rupees of foreign exchange in 1963-64. The average in 1962-63 was higher by about 40 per cent due to the sharp decline in unit values of cocoa powder and chocolate confectionery in 1963-64. In 1962-63, the value per tonne of cocoa powder had registered a marked rise and had gone up in the case of chocolate confectionery also.

5. The relative shares of cocoa powder and cocoa butter and paste came to 57 per cent and 21 per cent in the value of exports in 1963-64 as against 52 per cent and 13 per cent in quantity due to their higher value per metric ton. Country-wise other chocolate preparations which constituted 27 per cent of the quantity, earned only 14 per cent of the foreign exchange.

6. **Destinations**—Statistics showing the destinations of different cocoa products exported from India during 1960-61, 1961-62, 1962-63 and 1963-64 are given in Appendix II. It would be observed that in 1961-62 the largest buyer (in terms of value) was Australia followed, at considerable distances, by Kenya and U.K. Iraq appeared on the scene in 1962-63. Cocoa powder was bought in 1962-63 by Kenya, Iraq and U.K. Kenya which has bought only this cocoa product, is its largest buyer. We have lost the Swiss market for cocoa butter and paste during these years and found new ones, i.e., Malaya, Iraq and Singapore for chocolate confectionery. Taking the total picture, Kenya, U.K. and Iraq are the principal buyers of our cocoa products, contributing about 32 per cent, 30 per cent and 7 per cent respectively of the foreign exchange earned from their export in 1963-64. This points to the need of a careful study of foreign markets and stimulating demand in existing and potential markets. There should be considerable room for expansion of exports to countries in the Middle East and South East Asia apart from the possibilities of increasing indigenous consumption.

IMPORTS OF COCOA BEANS

7. **Quantity and Value**—The cocoa-based industries of India are at present almost entirely dependent for their raw material on imported cocoa beans of the forestero variety. A statement showing the quantity and value of cocoa beans imported into India from different countries during 1960-61 to 1963-64 is enclosed as Appendix III. During 1963-64 we imported 834 metric tons of cocoa beans, at an expenditure of about 20 lakh rupees of foreign exchange. U.K. was by far the largest supplier accounting for about 70 per cent of our imports. The next largest supplier was Ghana which met 23 per cent of the supplies. Thus these two countries met about 93 per cent of our requirements of cocoa beans. The only other country worth mentioning, as a supplier of cocoa beans, is West Germany. Only nominal quantities were received from Netherlands and Ceylon. The quantum of our imports rose from 442 metric tons in 1960-61 to 706 metric tons in 1961-62 and further to 853 metric tons in 1962-63. In 1963-64, there was a slight decline. The quantum of imports from U.K. and Ghana has been rising during these years. The imports from U.K. rose from 326 in 1960-61 to 584 metric tons and those from Ghana from 82 to 188 metric tons in 1963-64.

8. **Sources**—The relative importance of the sources of supplies underwent a change in 1961-62 as well as in 1962-63. The relative share of U.K. came down from about 74 per cent to 62 per cent and that of Ghana went up from about 19 to 31 during this year. Thus, though the total

share of these two countries in supplies remained practically the same, their importance *inter se* underwent a change. The relative shares of both Netherlands and Ceylon showed some decline. No supplies have been received from Brazil since 1960-61 whereas West Germany entered the field in 1961-62. The relative share of Netherlands and Ceylon declined further in 1962-63 when it came down from 4.4 per cent to about 1.2 per cent. The share of Ghana declined from 31 per cent to 22 per cent. On the other hand, the shares of U.K. and West Germany went up from 62.5 per cent to 71 per cent and from 2.1 per cent to about 6 per cent respectively.

9. The following table shows the value per metric ton of cocoa beans imported by India.

TABLE 2

Value of Cocoa Beans Imported by India

Value per metric ton (Rs.)

Country	1960-61	1961-62	1962-63	1963-64
U. K.	3,258	2,390	2,321	2,276
Netherlands	3,300	2,550	2,833	2,786
Ceylon	4,333	3,364	4,000	4,500
Ghana	3,305	2,844	2,548	2,729
Germany (West)	..	2,733	2,569	3,125
Brazil	3,200	..	..	..
Others	..	1,000	..	..
Average	3,292	2 ,555	2,397	2,446

10. On an average, a metric ton of cocoa beans cost Rs. 2,397 of foreign exchange in 1962-63 and Rs. 2,446 in 1963-64. It would be observed that the cocoa beans imported from Ceylon cost at least 43 per cent more than those imported from other countries while those received from U.K. cost the least. Generally speaking, the average value per ton of beans imported from these countries has been showing a downward trend though there was some rise in 1963-64.

EXPORT EXPANSION

11. **Export Incentives**—At present there is an export incentive scheme in operation under which import of raw material upto 75 per cent f.o.b. value of exports of the following items is being allowed:—

1. Cocoa powder.
2. Drinking Chocolate.
3. Cocoa butter.
4. Milk Chocolate.
5. Cocoa shell.
6. Milk Covering Chocolate.
7. Dark Covering Chocolate.
8. Dark Chocolate.
9. Un-sweetened covering chocolate, and
10. Breakfast cocoa.

12. **Supplies, Cocoa Powder**—It is estimated that during the 3-year period of 1960 to 1962, we produced about 329 metric tons of cocoa powder. As against this, our exports came to only 104 metric tons.

13. **Chocolate**—At present we are producing chocolates to the tune of some 1,000 metric tons per annum and exporting none. Efforts should be made to explore the possibilities of exporting chocolates.

14. **Cocoa butter**—It is learnt that cocoa butter is being put to new uses such as in the manufacture of cosmetics in countries like U.K., Switzerland, Australia, etc. We exported 20 metric tons of cocoa butter to U.K. in 1962-63. We also exported earlier smaller quantities to Australia and Switzerland. There is need for investigating why they have now stopped making purchases from us.

15. **Chocolate confectionery**—Efforts should be made to export chocolate confectionery to Persian Gulf countries where there is no indigenous production of this product.

16. **Expansion of production**—So long as the cocoa-based industries remain dependent on imports for their raw material, we cannot evidently export any sizeable exports of these products. If we are to build up exports of cocoa-based items, the first essential is to take adequate measures for developing the cultivation of cocoa in our own country.

17. There are two well-known varieties of cocoa, criollo and forestero. Criollo is the superior type that fetches a premium (even up to 30 per cent) in the world markets because of its finer quality and short supply. Forestero is known as a 'Basic' type.

18. India's present field experience is confined exclusively to the Criollo variety. In fact India is in the fortunate position of possessing Criollo almost in a pure form. However, some of the manufacturers in India have geared their chocolate industry almost exclusively to Forestero and are, therefore, anxious that India should grow only this variety and abandon Criollo. It has now been decided, after a prolonged controversy, that Kerala, Mysore, Madras and Maharashtra should grow criollo, while the forestero variety should be experimentally tried in Assam, Tripura, Orissa and Andamans. If the experiment proves a success, its cultivation could be expanded to the extent necessary to meet the needs of the manufacturers of cocoa products. The Indian Council of Agricultural Research is opposed to the cultivation of Forestero cocoa in Kerala. Madras, Mysore and Maharashtra, because Forestero and Criollo, when grown together, result in physical or genetical mixtures that are commercially of very little value. An important point to be emphasized is that the Forestero when grown in India would meet only the local demand limited by the installed capacity of the few manufacturers within the country. The annual world production of this type is of the order of 1.1 million metric tons while the estimated consumption is only about a million metric tons. We have been advised by our Embassy in Rome to be cautious in taking to the commercial cultivation of this variety as, with our relatively meagre production, it will be very difficult for us to compete in the international markets, particularly with Ghana where it is cultivated on a very large scale. Sustained production of Criollo will earn for us valuable foreign exchange through the export of cocoa products. A target of 2,500 acres to be brought under Criollo cultivation may be fixed for achievement in the Third Plan period. Instead of exporting Criollo as raw material we should develop our own chocolate industry based on Criollo and export chocolate and other cocoa

products to countries where cocoa products industries have not been set up. The indigenous demand for Forestero can be met by imports out of the earnings from cocoa products, if our schemes to grow Forestero in Assam, Tripura, Orissa and Andamans are not successful.

EXPORT TARGETS

19. The indigenous cocoa-based industries depend on imports, as stated earlier, for their requirements of cocoa beans. Therefore, our plans for the development of these industries and, consequently, for exports of cocoa products have to be linked with the imports of cocoa beans to the extent it is unavoidable. This could be as paying proposition from the foreign exchange angle, as raw material would always be cheaper than the manufactured product. But the possibilities, of earning net foreign exchange would be greater if other costs, i.e., manufacture, transport etc. are kept to the minimum. Assuming that adequate quantities of cocoa beans would be forthcoming to meet the damands of the industry, the following targets of exports are suggested:—

(a) **Cocoa powder**—At present we are exporting only about 31 per cent of our production. Export of 140 metric tons per year by the end of the Third Plan period would be a reasonable target for this item. For the Fourth Plan the annual target may be 250 metric tons per year.

(b) **Cocoa butter and paste**—The exports of cocoa butter and paste during 1960-61, 1961-62 and 1962-63 were 10 metric tons, 16 metric tons and 20 metric tons respectively. An export target of 40 metric tons per year by the end of the Third Plan period and of 80 metric tons by the end of the Fourth Plan period is suggested for this item.

(c) **Chocolate preparations including chocolate confectionery**—The exports of chocolate preparations including chocolate confectionery during 1960-61, 1961-62 and 1962-63 were 2 metric tons, 1 metric ton and 62 metric tons respectively. A target of 100 metric tons per year by the end of the Third Plan period seems to be reasonable for this item. The annual target by the end of Fourth Plan period should be 200 metric tons.

CONCLUSIONS AND RECOMMENDATIONS

1. Efforts should be made to explore the possibilities of exporting cocoa butter to U.K., Switzerland and Australia where it is being put to new uses, such as in the manufacture of cosmetics. (Para. 14).

2. Efforts should be made to export chocolate and chocolate confectionery to the Persian Gulf Ports where there is no indigenous production of this product. (Para. 15).

3. Measures should be taken for developing the cultivation of Criollo variety of cocoa beans as this variety is superior to the Forestero variety. A target of 250 acres under Criollo by the end of the Third Five Year Plan would appear to be reasonable. (Para. 18).

4. Instead of exporting the Criollo variety of cocoa beans as raw material, India should develop its own chocolate industry based on criollo and export chocolates etc. to Africa and other countries where cocoa industries have not been set up. (Para. 18).

5. The following annual targets of export by the end of the Third and Fourth Plan periods are suggested: —

Cocoa Products	Third Plan	Fourth Plan
Cocoa Powder	140 metric tons	250 metric tons
Cocoa butter & paste	40 metric tons	80 metric tons
Chocolate preparations including chocolate confectionery	100 metric tons	200 metric tons

(Para. 19).

APPENDIX I

Quantity and Value of Exports of Cocoa Products from India

Commodity	Quantity (metric tons)				Percentage to the total exports			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Cocoa powder .	..	12	92	168	..	41·38	52·88	52·01
Cocoa butter and paste	10	16	20	41	83·33	55·17	11·49	12·69
Chocolate confectionery	2	1	20	27	6·67	3·45	11·49	8·36
Other chocolate preparations	..	..	42	87	..	..	24·14	26·94
Total .	12	29	174	323	100·00	100·00	100·00	100·00

Commodity	Value (Rs. in lakhs)				Percentage to the total value			
	1960-61	1961-62	1962-63	1963-64	1960-61	1961-62	1962-63	1963-64
Cocoa powder . .	..	0·33	4·34	5·59	..	27·73	60·11	57·27
Cocoa butter and paste	0·53	0·81	0·92	2·07	84·13	68·07	12·74	21·21
Chocolate confectionery . .	0·10	0·05	1·25	0·77	15·87	4·20	17·31	7·89
Other chocolate preparations . .	..	..	0·71	1·33	..	..	9·84	13·63
Total .	0·63	1·19	7·22	9·76	100·00	100·00	100·00	100·00

APPENDIX II

Exports of Cocoa Products from India

Quantity: Metric tons
Value: Rs. in lakhs

Commodity/Country	1960-61		1961-62		1962-63		1963-64	
	Q	V	Q	V	Q	V	Q	V
Cocoa powder—								
Kenya	..	..	12	0·33	43	2·77	45	3·08
Iraq	..	..	..	..	17	1·00	11	0·68
Singapore	..	..	..	..	1	0·03	..	..
U.K.	..	..	..	..	29	0·48	107	1·61
Others	..	..	..	..	2	0·06	5	0·22
Total	..	..	12	0·33	92	4·33	168	5·59
Cocoa butter and paste—								
U.K.	4	0·20	3	0·15	20	0·92	8	0·39
Switzerland	5	0·28	..	..	..	..	..	..
Australia	1	0·05	13	0·66	..	..	33	1·68
Total	10	0·53	16	0·81	20	0·92	41	2·07
Chocolate confectionery—								
Federation of Malaya	..	..	..	..	5	0·24	5	0·25
Iraq	..	..	..	..	12	0·85	..	..
Singapore	..	..	..	..	3	0·16	4	0·19
Aden	2	0·10	..	..	..	..	17	0·28
Total	2	0·10	1*	0·05*	20	1·25	27@	0·77@
Other chocolate preparations—								
Spain	..	..	..	..	..	..	3	0·10
U.K.	..	..	..	..	41	0·70	64	0·94
Aden	..	..	..	..	..	..	20	0·29
Afghanistan	..	..	..	..	1	0·01	..	..
Total	..	..	..	..	42	0·71	87	1·33

*Small value transactions.
*Including figures for others.

सत्यमेव जयते

APPENDIX III

Imports of Cocoa Beans into India

Quantity: Metric tons
Value: Rs. in lakhs

Country	1960-61		1961-62		1962-63		1963-64	
	Q	V	Q	V	Q	V	Q	V
U.K.	326	10·62	411	10·54	604	14·02	584	13·20
Netherlands	20	0·66	20	0·51	6	0·17	28	0·78
Ceylon	9	0·39	11	0·37	4	0·16	10	0·45
Ghana	82	2·71	218	6·20	188	4·79	188	5·13
Germany West	..	..	15	0·41	51	1·31	24	0·75
Brazil	5	0·16	..	..	..	..	..	..
Others	..	0·01	1	0·01	..	..	..	..
Total	442	14·55	706	18·04	853	20·45	834	20·40

CHAPTER XXII

GARLIC

1. Garlic (Allium Sativum L.) is one of the important spices and condiments of the world. The bulbs are used for spicing, frying and condiment purposes not only in the generally known cured form after de-scaling the cloves and slicing and/or grinding with other ingredients but, in industrially advanced countries, also in the form of powder like other curry powders.

EXPORT TRENDS

2. **Quantity**—Statistics showing the volume and value (total and per metric ton) of garlic exports from India during the 10 years commencing 1954-55 (since when figures are available) are given in Appendix I. The quantum rose steadily during the year 1958-59 to 1961-62. From 680 metric tons in 1958-59 it went up to about 2,036 metric tons in 1961-62. In 1962-63 and again in 1963-64 there was a sharp fall in exports. The quantum of our annual exports of garlic has varied very widely during this decade. Exports touched the highest points in 1954-55 and 1961-62 when they exceeded 2,000 metric tons. On the other hand, during the year 1955-56 to 1958-59, the annual exports remained at a low level of about 7 to 8 hundred metric tons only. In 1963-64, they touched the lowest point, with 348 tonnes only. In other years, they varied between 1,089 metric tons and 1,631 metric tons.

3. **Value**—The annual value of exports of garlic has ranged between about 2.6 lakh rupees and 19 lakh rupees. The value per tonne or the average value has also been fluctuating widely during this period and has been between Rs. 652 and Rs. 1,133.

4. **Destinations**—Statistics showing the quantities and value of the annual exports of garlic to the principal buying countries during 1956-57 to 1963-64 are given in Appendix II. Ceylon and Aden are the most important buyers. At one time Burma and Netherlands were also one of our important importers of garlic. Ceylon has accounted for about 43 per cent to 87.8 per cent and Aden for 4.4 per cent to 29.2 per cent of our garlic exports during the years 1956-57 to 1963-64. By far the largest contribution to the export earnings from garlic is made by Ceylon accounting for about 42 per cent to 92 per cent of these earnings.

EXPANSION OF EXPORTS

5. **Importance for export**—Garlic is quite a rich yielder of foreign exchange. Our area under Garlic in the past two or three years is believed to have been in the neighbourhood of 47 thousand acres and the annual production about 75 to 80 thousand tons. Thus the average all-India yield per acre comes to about 1.6 tonnes. The average annual value per metric ton of garlic exported during the last three years came to 882 rupees. At this rate, an acre of land put to the cultivation of garlic yielded, on an average, about 1,411 rupees annually during these years.

6. **Demand**—The traditional markets are given in Appendix II. A survey of these markets and exploration of new markets is required for assessing the total demand for garlic in foreign markets. The economic and other factors, such as quality, price and supplies, which influence the competitive strength of our competitors e.g., Egypt, Italy and China require to be studied. A study team should be sent abroad to study not only the markets for garlic but also those for other related commodities. An integrated study of that type would be very useful for the proper planning of an export promotion drive for garlic and other commodities. This could be brought up-to-date from time to time with the help of our Commercial Attaches abroad.

7. **Supply**—The average annual exports during the last 3 years came to about 1,200 tonnes out of an estimated production of 75 to 80 thousand metric tons or about 2 per cent of the production. Even a slight diversion from internal consumption, therefore, can make a noticeable impact on the export earnings. Whatever the popularity of garlic for the seasoning of food preparations in certain areas, it is by no means an essential food item. There seems to be, therefore, considerable scope for such diversion. There is also scope for increasing production by raising the yield per acre by better agronomic practices.

8. **Improvement of Quality**—There was a complaint in February, 1961, from Tanganyika with regard to smut infection (Urecystis cepulac) due to which the Tanganyika Government banned the import of Indian onions and garlic. This appears to have been resolved later as garlic was imported by that country in 1961-62. Such complaints point to the need for a strict control on the quality of garlic meant for export and for the introduction of compulsory grading before export. The grade specifications have been framed for garlic under Agmark and the scheme for compulsory grading of garlic prior to export is likely to be enforced shortly.

9. **Marketing Facilities**—The main producing States in India are Gujarat, Maharashtra, Madras, Andhra Pradesh and Mysore. In Maharashtra and Gujarat most of the garlic, like onions, is marketed through the growers' cooperative societies, while in other States the Madras exporters or their agents operate in the assembling markets and arrange to supply the garlic to the ports of export.

10. In the field of export, the difficulties faced by growers' cooperatives are lack of cold storage and refrigerated warehousing at despatch and port ends, as well as refrigerated transport to the ports and of refrigerated shipping space for export. Another problem is the non-availability of shipping space in time which, at times, causes heavy losses to the societies. In the case of exports from other States, apart from the aforesaid difficulties, a long chain of unnecessary intermediaries also adversely effects the export potentialities.

11. Thus, the introduction of refrigerated rail, transport and provision of cold storage or refrigerated warehousing at despatch centres and ports could step up the exports of garlic. If we could develop our own proper refrigerated shipping, as the Chinese have done for their shipments to Ceylon, we could certainly capture a good slice of the European markets for our garlic which is said to have a better taste and flavour.

12. **Processing**—The Central Food Technological Research Institute has developed a modern method for the manufacture of garlic powder, which could be converted into tablets for proper storage. The process for

the preparation of garlic powder has been patented and is available for commercial development. The possibility of setting up a plant for the manufacture of garlic powder needs to be considered. This project could save a good deal of garlic from spoilage, due to improper storage, estimated at about 20 per cent of the crop, and enhance the period of storage and increase supplies for home consumption and exports. This would also reduce the costs of transport to a great extent. The powder has also considerable export potential.

CONCLUSIONS AND RECOMMENDATIONS

1. A survey of the existing and potential demand in existing overseas markets, as well as the exploration of new markets, is required for assessing the total demand for garlic in foreign markets. A Study Team should be sent abroad to survey not only the markets for garlic but also those for other related commodities. An integrated study of this type would be very useful for a proper planning of an export promotion drive. This could be brought up-to-date from time to time with the assistance of our Commercial Attaches abroad. (Para. 6).

2. Efforts may be made to raise the productivity of garlic by better agronomic practices. (Para. 7).

3. Compulsory quality control on garlic before export should be introduced. (Para. 8).

4. Facilities for cold storage and refrigerated warehousing in producing centres and at the export ports should be developed. (Para. 10).

5. There is need to develop refrigerated rail transport and refrigerated shipping for the export of garlic and other perishables. (Para. 11).

6. There is need to set up plants for making garlic powder for export as well as home consumption. (Para. 12).

सत्यमेव जयते

APPENDIX I

Exports of Garlic from India

Year	Quantity (Metric tons)	Value (Rs. in lakhs)	Value per Metric ton Rs.
1954-55	2,136	16·74	784
1955-56	715	4·80	671
1956-57	719	7·02	977
1957-58	842	6·91	821
1958-59	680	7·59	1,117
1959-60	1,089	12·34	1,133
1960-61	1,631	10·63	652
1961-62	2,036	19·03	935
1962-63	1,114	12·53	1,125
1963-64	348	2·59	744

N.B.—Prior to 1953-54, exports of garlic were not separately recorded.

APPENDIX II

Exports of Garlic from India

Quantity (Metric tons)

Destinations	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Aden	103	246	102	48	194	198	208	146
Ceylon	417	362	428	956	982	1,352	599	145
Malaya	..	..	..	..	55	86	..	..
Kenya	14	79	55	55	31	14	57	..
Mauritius . . .	..	25	19	11	93	150	78	11
Other countries .	185	130	76	19	276	236	172	46
Total .	719	842	680	1,089	1,631	2,036	1,114	348

Value (Lakhs Rs.)

Destinations	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Aden	0·67	1·25	0·56	0·28	0·68	1·08	1·45	0·97
Ceylon	5·02	4·06	6·05	11·33	7·43	14·27	8·29	1·11
Malaya	..	..	..	..	0·32	0·67	..	..
Kenya	0·11	0·52	0·33	0·43	0·12	0·11	0·51	..
Mauritius . . .	..	0·18	0·14	0·09	0·51	1·21	0·70	0·11
Other countries .	1·23	0·90	0·51	0·21	1·57	1·69	1·58	0·40
Total .	7·03	6·91	7·59	12·34	10·63	19·03	12·53	2·59

सत्यमेव जयते

CHAPTER XXIII

DAIRY PRODUCTS

India has been importing sizeable quantities of dairy products. A statement showing the imports of various dairy products into India since 1960-61 is enclosed as Appendix I.

2. The products which have an international export market are milk powder evaporated and condensed milk, infant milk foods, malted milk foods, butter, melted butter (ghee) and cheese. The position in regard to each of these is discussed below:

MILK POWDER

3. **Imports**—The following table shows the imports of 'milk and cream dry in solid form such as blocks and powder' into India during the past four years:—

TABLE 1

Imports of Milk and Cream (dry in solid form)

Years	Quantity (Metric ton)	Value (Rs. in lakhs)
1960-61	21,582	394·14
1961-62	52,707	761·50
1962-63	46,718	756·96
1963-64	47,732	778·27

4. **Production**—The production of milk powder during the last four years has been as follows:—

Years	(Metric tons)
1960	514
1961	784
1962	713
1963	1,359

5. The requirement of spray dried skimmed milk powder for the Toned Milk Distribution Programme of Bombay, Calcutta and other Government Dairies is expected to be about 10,000 metric tons in 1964-65. The total requirements of milk powder (skimmed and whole) for civil and defence purposes are likely to be about 18,000 metric tons.

6. Ample industrial capacity has been licensed in recent years for the production of milk powder. The annual installed capacity of the various plants for producing milk powder is estimated at 35,269 metric tons as shown below:—

	(Metric tons)
Cooperative Sector	9,600
Public Sector	8,650
Private Sector	17,019
Total	35,269

But, unfortunately, very limited progress has so far been made in setting up the plants or in utilising their capacity. Two units have been sanctioned in the cooperative sector, one at Anand and the other at Mehsana. Only the unit at Anand is in operation. Of the 13 plants licensed in the public sector, only two, those at Amritsar and at Madras, have started production. The Amritsar unit is estimated to be producing about 200 tonnes annually. Figures of production by the Madras plant are not available, but it is believed that its output is very small. The public sector plants are progressing according to schedule and it is hoped that the plants will be able to utilise their entire installed capacity by 1966-67. As regards private sector, 9 factories have so far been licensed for the production of milk powder. But none of them has started production of milk powder, though some of them had been issued licences as early as 1958 and 1960. In fact, 6 factories are yet to get sanction for import of equipments etc. It takes time to set up the plants etc. because the equipment has to be imported and there are several other bottlenecks, e.g., acquisition of land, availability of milk. Every effort should be made to set up the licensed plants quickly and to run them to their full capacity so that we may meet our entire requirements internally and do away with imports.

EVAPORATED AND CONDENSED MILK

7. **Imports**—The following table shows the imports of 'milk and cream evaporated or condensed in liquid or semi-liquid form' into India during the past four years:—

TABLE 2

Imports of Milk and Cream (evaporated or condensed)

Years	Quantity	Value
	(Metric tons)	(Rs. in lakhs)
1960-61	3,792	68·39
1961-62	2,895	33·55
1962-63	4,114	57·41
1963-64	250	4·13

सत्यमेव जयते

8. **Production**—The annual installed capacity licensed by the Government of India for the production of condensed milk is 8,453 metric tons. The production of condensed milk in India during the past few years has been as follows:—

Years	(Metric tons)
1960	27
1961	229
1962	1,491
1963	3,471

9. **Exports**—There have been no exports of condensed milk from India so far. There is little prospect of our exporting condensed milk because the production is very much less than our requirements. Even if we were self-sufficient and could spare some quantities for export, we could not compete in the world markets with the traditional producers of foreign dairy products in view of their low costs of production.

INFANT MILK FOODS

10. **Imports**—The following table shows the imports of infant milk foods into India during the past four years:—

TABLE 3

Imports of Infant Milk Foods

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1960-61	1,601	81·83
1961-62	1,462	71·60
1962-63	294	17·56
1963-64	99	5·37

11. The present licensed capacity of baby foods in the country is about 5,993 metric tons. The production of baby foods in India during the past few years has been as follows:—

Years	(Metric tons)
1960	160
1961	1,845
1962	3,606
1963	4,202

12. **Exports**—The internal demand for baby foods is still unsatisfied and there is little scope for export of baby foods until the internal demand is fully met. This is estimated to be about 10 to 12 thousand metric tons per annum.

MALTED MILK FOODS

13. **Imports**—The following table shows the imports of malted milk foods into India during the past four years:—

TABLE 4

Imports of Malted Milk Food

Years	Quantity (Metric tons)	Value (Rs. in lakhs)
1960-61	75	4·51
1961-62	7	0·41
1962-63	6	0·37
1963-64	Nil	Nil

14. The installed capacity for the production of malted milk foods is 6,848 metric tons. The production of malted milk foods in India during the past few years has been as follows:—

Years	(Metric tons)
1960	1,113
1961	1,971
1962	2,624
1963	3,502

15. **Exports**—There have been no exports of malted milk foods from India so far. There is little chance of our being able to compete in the world markets with the established exporters of this product like Australia, New Zealand and U.K.

BUTTER

16. **Production**—The following table shows the production of butter in India during the past few years:—

Years	(Metric tons)
1960	1,794
1961	2,386
1962	2 398
1963	3,000*

*Provisional.

17. **Exports**—Among dairy products, butter and ghee figure in the export trade as figures in App. II would show. There have been small exports of butter (both tinned and fresh) from India. We have been exporting about 1 metric ton of butter per annum, except in 1962-63 when we exported about 3 metric tons. Indian butter, like other dairy products, cannot compete successfully in foreign markets with established exporters like New Zealand, Australia and Denmark. But the Kaira Milk Union have reported that they have received an enquiry from certain West Asian countries for about 10 tons of butter. The Kaira Milk Union could, perhaps, be encouraged, to export about 25 tons of tinned butter every year. Butter is a bye-product of the organised dairy industry and a part of the production of butter could be set apart for export purposes. A cautious start will have to be made in this field for our own potential requirements of butter are very large. Exports in a small way and increasing gradually need not appreciably affect domestic supplies.

MELTED BUTTER (GHEE)

18. **Exports**—The exports of melted butter (ghee) during the past four years have been as follows:—

TABLE 5

Exports of Melted Butter (ghee)

Years	Quantity	Value
	(Metric tons)	(Rs. in lakhs)
1960-61	16	1·16
1961-62	6	0·41
1962-63	8	0·65
1963-64	13	1·07

19. The important countries importing Indian melted butter (ghee) are Malaysia, Singapore and Aden. These imports are for the needs of people of Indian origin in those countries. The Kaira Milk Union has reported that their enquiries have shown that Malaysia needs ghee worth Rs. 2.5 million Dollars (Malayan) or Rs. 2.5 millions. Ghee is also a bye-product of the organised dairy industry. The Union should be encouraged

and, if necessary, subsidised to export as much quantity of ghee as it can. A target of one million Dollars (Malayan) (Rs. One million) worth of exports could be fixed for achievement by the end of the 3rd Five Year Plan. This would be 125 metric tons per year.

20. A suggestion has been made that Indian dairies could, perhaps, reduce the fat content of their milk supplies to the consumers from 6 per cent to 4 per cent, so as to make a larger quantity of ghee and even some quantity of butter available for export purposes. This suggestion, if accepted, would also reduce the cost of milk for the consumers. The suggestion is worth examining.

CHEESE

21. **Imports**—The following table shows the imports of cheese into India during the past four years:—

TABLE 6

Imports of Cheese

Years	Quantity (Motric tons)	Value (Rs. in lakhs)
1960-61	80	4·22
1961-62	88	4·37
1962-63	139	6·04
1933-64	572	20·99

22. **Production**—The production of cheese in 1962 was about 20 metric tons. Kaira Milk Union could perhaps produce a somewhat larger quantity, but this could meet only the internal requirements. There is, therefore, little prospect of our being able to export cheese.

CONCLUSIONS AND RECOMMENDATIONS

1. Every effort should be made to set up quickly the plant licensed for the manufacture of milk powder and to run them to their full capacity so that we may meet our entire requirements internally and do away with imports. (Para 6).

2. Butter is a bye-product of the organised dairy industry and a part of the production of butter could be set apart for export purposes with due regard to our domestic requirements. (Para 17).

3. The Kaira Milk Union could, perhaps, be encouraged and, if necessary, subsidised to export butter and ghee to West Asian countries. (Para 17 and 19).

4. Efforts should be made to export Indian melted butter ghee to Malayasia for the needs of people of Indian origin. (Para 19).

5. The question of effecting a reduction in the fat content of the milk supplied to the consumers by Indian dairies with a view to making a larger quantity of ghee and butter available for export needs to be examined. (Para 20).

6. The following annual targets of export till the end of the Third Five Year Plan period are suggested:

	(Matric tons)
Butter	25
Ghee	125

(Paras 17 and 19).

APPENDIX I

Imports of Dairy Products into India

Quantity : Metric tons
Value : Rs. in lakhs

Item	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Milk and cream fresh including butter milk, skim milk, sour milk, sour cream and whey	1	0·01	..	..	..	..	..	..
2. Milk and cream evaporated, condensed or dried—								
(*i*) Milk and cream including butter milk, skim milk and whey evaporated or condensed in liquid or semi-liquid form	3,792	68·39	2,895	33·55	4,114	57·41	290	4·13
(*ii*) Milk and cream including butter milk, skim milk and whey dry in solid form such as blocks and powder	21,582	394·14	52,707	761·50	46,718	756·96	47,732	778·27
Total	25,374	462·53	55,602	795·05	50,832	814·37	48,022	782·40
3. Butter—								
(*i*) Butter fresh, canned	Neg.	0·03	Neg.	0·01	..	..	6	0·29
(*ii*) Other butter	1	0·04	..	..	..	..	..	..
Total	1	0·07	Neg.	0·01	..	..	6	0·29
4. Cheese	80	4·22	88	4·37	139	6·04	572	20·99
5. Other dairy products—								
(*i*) Malted milk	70	4·27	5	0·28	6	0·36	..	..
(*ii*) Malted milk powder	5	0·24	2	0·13	Neg.	0·01	..	..
(*iii*) Milk food for infants	1,601	81·83	1,462	71·60	294	17·56	99	5·37
(*iv*) Ice cream powder	..	..	Neg.	0·01	Neg.	0·03	3	0·10
(*v*) Others	433	17·68	368	20·23	148	7·06	52	2·20
Total	2,109	104·02	1,837	92·25	448	25·02	154	7·67

Neg.—Negligible

सत्यमेव जयते

APPENDIX II

Exports of Dairy Products from India

Quantity: Metric tons
Value: Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Milk and cream fresh—								
(*i*) Milk and cream fresh including butter milk etc.	..	..	..	..	Neg.	Neg.	1	0·05
2. Milk and cream evaporated, condensed or dried —								
(*i*) Milk and cream dried in solid form such as blocks and powder—								
(*a*) Skimmed milk upto 4 p.c. fat	..	..	Neg.	Neg.	Neg.	Neg.	..	..
(*b*) Other skimmed milk . .	Neg.	Neg.	Neg.	Neg.	..	..	Neg.	Neg.
3. Butter—								
(*i*) Butter fresh (Canned) Nepal	1	0·04	..	..	..	..	..	..
Others . .	Neg.	Neg.	Neg.	0·03	1	0·02	Neg.	Neg.
Total .	1	0·04	Neg.	0·03	1	0·02	Neg.	Neg.
(*ii*) Butter fresh, other than canned Pakistan West .	..	..	..	..	2	0·07	Neg.	0·01
Others . .	Neg.	0·01	1	0·05	Neg.	0·01	1	0·02
Total .	Neg.	0·01	1	0·05	2	0·08	1	0·03
(*iii*) Malted butter ghee—								
Malaya . .	5	0·36	3	0·20	3	0·24	3	0·21
Singapore .	5	0·36	3	0·19	1	0·11	2	0·18
Aden . .	2	0·21	..	..	3	0·28	7	0·62
Others . .	4	0·23	Neg.	0·02	1	0·02	1	0·07
Total .	16	1·16	6	0·41	8	0·65	13	1·07
4. Cheese . .	Neg.	0·01	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
5. Other dairy products—								
(*i*) Milk foods for infants/invalids .	Neg.	0·01	Neg.	0·02	Neg.	0·01	Neg.	Neg.
(*ii*) Dairy products other than milk foods for infants/invalid . .	1	0·04	..	..	Neg.	Neg.	Neg.	0·02

Neg.—Negligible.

सत्यमेव जयते

CHAPTER XXIV

SISAL FIBRE

Sisal belongs to the category of hard fibres and is put to a variety of uses. It is mainly used for the production of marine cordage because of its property to withstand salinity of the sea water. Sisal has also begun to be used in the preparation of some textile fabrics which are required for the production of linoleum, packings, twine and imitation leather. For making these products special degumming processes have been evolved. Sisal wax is in demand overseas and this could be an important source of foreign exchange earnings.

PRODUCTION

2. There are no reliable statistics to show the present level of production of sisal fibre in India. According to a rough estimate, the present production does not exceed 2,500 metric tons. The crop is generally grown on waste lands in the States of Madras, Maharashtra, Orissa, Mysore and West Bengal. Orissa was perhaps the first state to take up cultivation of sisal on a commercial scale and three or four farms were set up in this State. With the exception of one farm, which is still in production, the others seem to have gone into disuse. The Government of West Bengal recently took up sisal plantation in two areas, viz., Rajnagar, Birbhum District and Kaleghai, District Midnapore. These plantations cover areas of 100 acres and 600 acres respectively. The Rajnagar plantation has begun to yield over 3,000 mds. of fibre per year. The yield is expected to go up. The Kaleghai plantation from which fibre extraction has just started, is expected to yield about 1,000 mds. of fibre annually. Apart from these two plantations, hardly any effort has been made to grow sisal on a commercial scale in any part of India. The crop has been grown very largely as a hedge round cultivated fields and the species grown are also such as are not the best for fibre production. There are four species of sisal, viz., *Agave sislana, Agave cantula, Agave veracruz* and *Agave angustifolia*. Out of these *Agave sislana* produces the best quality fibre, but its cultivation in India has so far been on a very restricted scale. In any attempt that might be made in future either for making India self-sufficient in regard to its requirements of sisal fibre or for export purposes, the main emphasis will have to be laid on the cultivation of this particular species. It might also be mentioned that in East African countries, where sisal is grown extensively on a commercial scale, *Agave sislana* has been adopted in preference to other species.

INTERNAL REQUIREMENTS

3. Because of small internal production, which does not exceed 2,500 metric tons, India has been depending on imports, for meeting its requirements of sisal fibre. A statement showing the imports of sisal and other fibres of the Agave family since 1960-61 is enclosed as Appendix I. It would be observed that the annual imports during the three years ending 1962-63 have been of the order of 4 to 6 thousand metric tons valued at about Rs. 51.66 lakhs. Almost all imports are made from African countries. Due to the restrictions which have been recently imposed on import of sisal fibre, it is reported that about 40 per cent of the rope making machines available in the country are lying idle at present.

STEPS FOR INCREASING PRODUCTION

4. The Government of India appointed a committee some time back to go into the question of increasing the production of sisal. The following are the important recommendations of this Committee:—

(i) For undertaking research on sisal cultivation in all its aspects, a Central Sisal Research Station should be set up at a suitable place.

(ii) An area of 50,000 acres should be brought under sisal cultivation in the States of Orissa, Bihar, Maharashtra, U.P., Mysore, Andhra Pradesh and Madhya Pradesh for producing 15,000 metric tons of fibre annually which is the internal requirement at present. The following targets were assigned to these states:—

	Acres
Orissa	10,000
Bihar	10,000
Madhya Pradesh	5,000
Andhra Pradesh	5,000
West Bengal	5,000
Mysore	5,000
Uttar Pradesh	5,000
Maharashtra	5,000
Total	50,000

(iii) The existing commercial plantations gone into disuse might be revived by proper cultivation and manuring and for this purpose the Indian Central Jute Committee might extend financial assistance to the owners of those plantations.

(iv) Since the quality of sisal fibre depends largely on the process of decortication used, it was recommended that a few machines of carona type being used in East African countries might be imported for trial under Indian conditions. Subsequently, steps should be taken to fabricate such machines within the country itself.

(v) Technological aspects of sisal should be studied at the Technological Research Laboratories of the Indian Central Jute Committee and the Indian Standards Institution might be approached for fixation of grades of sisal fibre to enable the growers to produce fibre of standard quality.

(vi) For getting necessary training in all aspects of sisal cultivation, fibre extraction and processing, a technical officer might be sent to East Africa and Java where a lot of research has been done and the sisal industry has been put on a scientific footing.

5. The Ministry of Food and Agriculture have initiated action on the various recommendations of the Committee. For carrying out research on sisal, a Central Research Station has been set up at Bamra in Orissa State. As regards the scheme for the development of sisal, model scheme was sent to the States of Orissa, West Bengal, Bihar, Maharashtra, U.P., Mysore, Andhra Pradesh and Madhya Pradesh. The State Governments concerned have not been able to start the scheme so far in view of the fact that (i) the feasibility and economics of sisal cultivation have not yet been effectively demonstrated and popularised and (ii) the State Governments find it difficult to provide adequate funds, for the purpose within their plan

ceilings. In view of the Government's anxiety to go ahead with the development programme, it has recently been decided that the State Governments may be induced to launch pilot demonstration schemes for the cultivation of sisal so that the targetted area could be covered as early as possible. Accordingly, it has been decided that the above pilot schemes may be financed in full by the Indian Central Jute Committee. This would be on the distinct understanding that this assistance from the committee would be available during the Third Five Year Plan period only and the State Governments would take over the schemes at the commencement of the Fourth Five Year Plan as part of their normal development plans. The above arrangement is only in respect of the pilot schemes and does not envisage the cultivation of the entire area of 50,000 acres. The total expenditure on the scheme for the remaining three years of the Third Five Year Plan is estimated at about Rs. 4 lakhs.

EXPORT POSSIBILITIES

6. A statement showing the quantity and value of sisal fibre, sisal ropes and sisal twine exported from India since 1960-61 is enclosed as Appendix II. It will be seen that only a small quantity (10 metric tons) of sisal and other fibres of the Agave family was exported during 1962-63; there were no or negligible exports during 1960-61 and 1961-62. A small quantity (2 metric tons) of sisal twine was exported during 1961-62; there were no exports during 1960-61 and 1962-63. Exports of sisal ropes during 1960-61, 1961-62 and 1962-63 were of the order of 140 metric tons, 97 metric tons and 33 metric tons, respectively.

7. In order to examine the prospects of increasing the exports of sisal from India, statistics of consumption of this fibre in the chief importing countries are given in the following table:—

सत्यमेव जयते

TABLE 1

Consumption of Sisal Fibre in Different Countries of the World

(Thousand Metric tons)

Country	Annual average 1946-50	Annual average 1951-55	1956	1957	1958	1959	1960	1961
United Kingdom	66	64	64	71	72	78	83	70
Canada	31	30	30	35	28	35	26	30
Australia	7	13	15	16	17	21	26	25
United States	65	125	124	114	99	88	73	74
France	20	36	53	61	69	58	56	51
Western Germany	13	33	54	52	50	56	57	55
Netherlands	8	18	28	28	34	41	36	41
Belgium	2	13	24	27	27	27	26	35
Italy	1	4	10	8	10	11	20	15
Total Common Market	44	104	169	176	190	193	195	197
Japan	9	6	16	18	20	27	26	33
Portugal	3	5	9	13	16	21	21	28
Denmark	7	10	14	16	21	18	20	19
Total	232	357	441	459	463	481	470	476

8. The principal buyers of this fibre are the U.K., France and West Germany. With the exception of the United States of America, where consumption of sisal fibre has gone down, in all other importing countries the demand for this fibre has been generally on the increase during the last five years and was higher in 1960 than in 1956. The reason for the reduced use of sisal in U.S.A. is that these countries have begun to utilise more and more of man-made fibres and steel (Wire). Although these substitutes are costlier than the natural fibre, they are stronger, more durable and resistant to sea water and chemicals. However, going by the figures given in the above table, there seem to be bright prospects for the export of sisal fibre from India particularly to the European countries. The use of sisal in the manufacture of baler and binder twine constitutes a good outlet for the export of this fibre. In addition, sisal is also being used increasingly for ropes, commercial twines, cords and floor coverings. Experiments have also been carried out in foreign countries to employ sisal in the manufacture of bagging and sacks and in its use in the reinforcement of building boards and the manufacture of paper. These will provide additional outlets for this fibre.

9. In this context it must be stated that sisal growing is a long-term venture involving high capitalisation, often as much as £200 per ton. It is also noteworthy that all sisal producing countries are concentrating at present on cutting down the cost of production of this fibre by improving the yield per unit area. In Tanganyika, a new hybrid plant (No. 11648), capable of yielding three times the normal quantity of fibre per acre, has been produced and planting material of this hybrid is now being disseminated. Although the effects of this hybrid will not be fully felt for another five to ten years, the long range effect which the distribution of such hybrids will have on reducing cost cannot be ignored.

10. If India is to be an exporter of sisal fibre, it will have to compete with British East Africa, Brazil, Tanganyika, Kenya, Uganda, Angola and Haiti which have already reached a high level of efficiency in regard to the production of this fibre and where the cost of production has already been considerably reduced by the use of high yielding varieties as well as other suitable techniques. To be able to compete with these countries, cultivation of sisal in India will have to be taken up on a well-organised plantation scale. As has been found out by the Waste Lands Survey Committee, which was set up by the Ministry of Food and Agriculture sometime back, there are enough waste lands available in different States which could be utilised for setting up of such plantations on a commercial scale. If private enterprise is not found willing to take up its production, the Government may consider setting up of a Corporation for the purpose. The manufacturing units should also be set up along with the plantations. The Govt. may also consider the desirability of entrusting the cultivation of ramie as well as of sann-hemp to the Corporation, because these fibres also have considerable export potential.

11. Sisal can yield some valuable bye-products, namely, hycogenone and sisal wax. At present these are being wasted. If the method of collection of fibre from sisal is improved, these waste products could be recovered and utilised. This could enable us not only to effect savings in foreign exchange by reducing the imports of cortisone—made from hycogenene—and carnuba wax but also to earn foreign exchange from the exports of hycogenene for which there is considerable demand in foreign countries.

CONCLUSIONS AND RECOMMENDATIONS

1. In any attempt that might be made in future either for making India self-sufficient in regard to its requirements of sisal fibre or for export purposes, emphasis will have to be laid on the cultivation of Agave sislana species of sisal. (Para 2).

2. If private enterprise is not willing to take up production of sisal, a corporation should be set up by the Government for the purpose. The manufacturing units should be set up along with the production units. This corporation could also take up the growing of ramie and sann hemp. (Para 10).

3. If the method of collecting fibre from sisal is improved so that its bye-products hycogenene and sisal wax could be collected and utilised, we could not only effect savings in foreign exchange by reducing imports but also earn foreign exchange from the exports of hycogenene.

(Para 11).

APPENDIX I

Imports of Sisal and other Fibres of the Agave Family into India

Quantity : Metric tons
Value : Rs. in lakhs

Commodity/Country	1960-61		1961-62		1962-63	
	Quantity	Value	Quantity	Value	Quantity	Value
Sisal hemp or fibre—						
Kenya	3,055	35·83	2,942	31·45	2,474	28·80
Tanganyika . .	1,020	11·83	2,973	31·36	2,621	28·50
Tonga . . .	172	1·71	112	1·12	..	..
Rhodesia S. . .	73	0·85	196	1·89	..	..
Others . . .	37	0·43	56	0·41	24	0·32
Total .	4,357	50·65	6,279	66·23	5,119	57·62
Other fibres of agave family—						
Germany West .	..	..	..	..	28	0·26
Others . . .	..	..	1	0·01	..	..
Total .	..	..	1	0·01	28	0·26

APPENDIX II

Exports of Sisal Fibre, Sisal Ropes and Sisal Twine from India

Quantity : Metric tons
Value : Rs. in lakhs

Commodity/Country	1960-61		1961-62		1962-63	
	Quantity	Value	Quantity	Value	Quantity	Value
Sisal and other fibres of the Agave family .	..	..	Neg.	Neg.	10	0·12
Sisal ropes—						
Kuwait . . .	11	0·30	..	..	..	..
Pakistan, East . .	15	0·26	8	0·15	7	0·13
Malaya . . .	69	1·12	43	0·70	13	
Fiji Islands . .	15	0·28	17	0·28	5	0·07
Others . . .	30	0·60	29	0·55	8	0·17
Total .	140	2·56	97	1·68	33	0·57
Sisal twine . .	..	..	2	0·03	..	..

CHAPTER XXV

REPACKING OF DATES AND DRY FRUITS

The items of dry fruits appearing in India's foreign trade are dates, almonds, pistachio nuts, cherries (dried), figs (dried), plums (dried), prunes (dried), raisins and sultanas. The position with regard to each of these is discussed below :—

DATES

1. The production of dates in India is negligible. The following table shows the comparative position of imports and exports of dates (fresh and dried):—

TABLE 1

Imports and Exports of Dates

Quantity : Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports . .	54,427	307·74	61,438	316·33	33,112	222·88	54,425	22.068
Exports . . .	5	0·07	19	0·14	4	0·08	1	0·66
Re-exports . .	17	0·18	19	0·15	31	0·07	3	0·07

The bulk of imports of dates into India is from Iraq. The re-exports of dates have been mainly to Mozambique, Ceylon, U.K. and Singapore. There does not seem to be any scope for developing the re-exports of dates from India.

ALMONDS

2. Reliable information regarding the production of almonds within the country is not available. However, it is known that appreciable quantities of almonds are produced in Jammu & Kashmir and certain other areas. At present there are substantial imports of almonds and practically no exports or re-exports. The following table shows the comparative position of imports and exports of almonds: —

TABLE 2

Imports and Exports of Almonds

Quantity: Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports . . .	6,880	240·79	3,925	166·74	5,037	232·71	3,422	166·94
Exports . . .	1	0·02	2	0·03	..	0·02	1	0·02
Re-exports . .	..	0·01	..	..	..	..	Neg.	0·02

The bulk of imports of almonds into India takes place from Afghannistan and Australia. There does not seem to be any scope for develpoing the re-exports of almonds from India.

PISTACHIO NUTS

3. Reliable information regarding the production of pistachio nuts within the country is not available. However, it is understood that there is some production of pistachio nuts in Jammu and Kashmir. At present there are substantial imports of pistachio nuts into India. There are some exports and re-exports, too. The following table shows the comparative position of imports and exports of pistachio nuts:—

TABLE 3

Imports and Exports of Pistachio Nuts

Quantity : Metric tons
Value : Rs. in lakhs.

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports	1,228	86·38	291	19·33	462	31·65	818	58·53
Exports . . .	1	0·12	2	0·26	1	0·09	Neg.	0·03
Re-exports . .	7	0·78	5	0·46	1	0·10	Neg.	0·06

The bulk of the imports of pistachio nuts into India is from Afghanistan. The re-exports of pistachio nuts have been mainly to U.S.A. and Singapore. There does not seem to be any scope for developing the re-exports of pistachio nuts from India.

CHERRIES (DRIED)

4. At present there are no imports of cherries (dried). There is hardly any scope for developing its re-exports.

FIGS (DRIED)

5. At present there are substantial imports of dried figs and practically no exports or re-exports. The following table shows the comparative position of imports and exports of dried figs:—

TABLE 4

Imports and Exports of Dried Figs

Quantity : Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports . . .	84	2·66	83	2·98	219	6·30	60	2·03
Exports . . .	..	0·01	..	0·01	..	Neg.	..	..
Re-exports . .	..	0·01	..	Neg.	..	Neg.	..	Neg.

The bulk of the imports of figs takes place from Greece and Afghanistan,

6. Figs are grown to some extent in Maharashtra, Gujarat, and certain other areas. The technique of drying figs has not yet been developed in India. It should be possible to develop dried figs of good quality in India both for inernal consumption and for exports. The matter may be referred to the Central Food Technological Research Institute, Mysore, for investigation. They may be requested to study the possibility of developing an efficient unit for the drying of figs on scientific lines.

PLUMS (DRIED)

7. The comparative position of imports and exports of plums is as follows: —

TABLE 5

Imports and Exports of Dried Plums

Quantity : Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports . . .	56	2·20	71	2·98	49	1·62	46	1·80
Exports . . .	..	Neg.	..	0·01	..	..	..	..
Re-exports . .	..	..	..	..	..	..	..	..

The bulk of imports of plums into India takes place from Afghanistan. There does not seem to be any scope for developing the re-exports of plums from India.

PRUNES (DRIED)

सत्यमेव जयते

8. The following table shows the comparative position of imports and exports of prunes (dried): —

TABLE 6

Imports and Exports of Dried Prunes

Quantity : Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Imports . . .	8	0·17	3	0·10	5	0·10	271	6·97
Exports . . .	..	..	..	..	..	..	..	..
Re-exports . .	..	..	..	..	..	..	..	..

The bulk of the imports of prunes (dry) into India is from Afghanistan. There does not seem to be any prospect of developing re-exports of prunes (dry).

RAISINS AND SULTANAS

9. The following table shows the comparative position of imports and exports of raisins and sultanas:—

TABLE 7

Imports and Exports of Raisins and Sultanas

Quantity : Metric tons
Value : Rs. in lakhs

	1960-61		1961-62		1962-63		1963-64	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. *Raisins*								
Imports . . .	7,659	182·64	2,265	59·50	7,130	237·96	5,915	166·54
Exports . . .	3	0·06	..	0·01	1	0·05	Neg.	..
Re-exports . .	7	0·11	4	0·09	2	0·13	Neg.	0·61
2. *Sultanas*								
Imports . . .	740	15·57	980	27·89	1,157	40·84	264	3·97
Exports . . .	..	..	..	..	..	..	..	..
Re-exports . .	..	..	..	..	..	..	..	..

The bulk of the imports of Raisins and Sultanas into India takes place from Afghanistan and Iran. The re-exports of raisins have been mainly to Kenya.

10. There is a great demand for raisins in India and almost the whole of it is met by imports. The manufacture of raisins has not yet been developed in India on commercial lines. If the industry is properly developed, it will be possible to reduce the large volume of imports of raisins and sultanas. Development of the industry is also necessary to exploit the internal availability of grapes. There has been in recent years a rapid expansion of acreage under grapes. The available reports also indicate that the climate in certain parts of India is ideal for grape cultivation. Therefore, there is every possibility of India being able to produce raisins in sizeable quantities if the processing industry is properly organised and developed. The varieties suitable for processing, the technique of processing and other relevant aspects have to be fully studied. The problem may be referred to the Central Food Technological Research Institute, Mysore, for investigation. They may be asked to study the possibility of developing a few raisin manufacturing units at suitable locations in India.

CONCLUSIONS AND RECOMMENDATIONS

There is scope for developing export/re-exports of figs (dried) and raisins. The technique for drying and processing figs/grapes has to be improved so that we get good quality dried figs/raisins both for internal consumption and for export. The Central Food Technological Research Institute, Mysore, may be requested to investigate into this problem and examine the possibilities of developing an efficient unit for the drying and processing of figs/raisins on scientific lines.

(Paras 6 and 10).

CHAPTER XXVI

CONCLUDING REMARKS

1. The studies that have been done into the qualitative and quantitative problems of export of agricultural commodities and the result of which is embodied in this general survey and specific surveys of each important commodity have thrown up a multiplicity of ideas, suggestions and recommendations. The importance of each of these might got lost due to dispersal in the voluminous material that has been collected. At the same time the magnitude of efforts required is so vast and coverage of commodities and areas is so large that we cannot afford to neglect any single important aspect of improvement or miss the wood for the trees. It might, therefore, be worth while to give some general features of the problems in a final summing up.

2. Exports of agricultural commodities, broadly speaking, are confined to 22 commodities, namely, spices, oilseeds, vegetable oil (non-essential), oilcakes, tobacco, vegetable oils (essential), gums and resins, lac, sugar (excluding molasses), cashew kernels, walnuts, onions, potatoes, garlic, pulses, other fruits and vegetables, raw cotton, raw jute, fish and fish products, raw wool, animal and sheep casings, and meat and meat products. The total value of the exports of these commodities in 1963-64 exceeds by a small margin the target fixed for the Third Five Year Plan. While this is a matter of real satisfaction, there is no room for complacency, particularly since there are signs of developing competition from different countries, the consumers are becoming more exacting in the standards of service and quality of the product, we are still ill-equipped in the normal aids to exports and export promotion, and what is more, the export targets for the Fourth Five Year Plan require an expansion of as much as 40 per cent in value.

3. An analysis of the countries of destination shows that our main spheres of activity in export promotion would have to be U.S.A., U.K., U.S.S.R., countries in the European continent, particularly Eastern Europe, Japan, Australia and Malaysia. This is based on the existing patterns of trade. The importance of raising markets in Africa, the Middle East and the Far East is becoming prominent from the point of view of future expansion. A recent survey of possibilities of trade with East Asia has brought out some promising developments in respect of bananas, cashew-kernels, cashewnut shell-oil, essential oils, fruits, gums, lac, meat and meat products, oilcakes, oil-seeds, sheep casings, spices, sugar and sugar preparations, tobacco and tobacco preparations, vegetable oils and vegetables.

4. Amongst these countries it seems possible to forecast that if adequate efforts are made and concentrated attention is paid to the promotion of exports, particularly keeping in view the present trend of international trade on bilateral rather than unilateral lines, significant improvement in exports can be made with U.S.A., U.K., U.S.S.R., Japan, Czechoslovakia, West Germany, East Germany, Poland, Malaysia, Persian Gulf territories and Australia.

5. In particular, it should be possible to promote export of walnuts to Eastern Europe, Switzerland, Sweden, Holland and West Germany, of onions and garlic to U.K. and other European countries, of dehydrated onions to West Germany, Czechoslovakia, Switzerland, Kuwait, Malaysia and Bahrein, of fruits and fruit products to Eastern Europe, Italy, Germany, U.S.A., Japan and Middle East, of tobacco and tobacco products to Poland, Belgium, West and East Germany and U.S.A., of animal and sheep casings to U.K. and U.S.A., of ginger powder and pickles to U.S.A., of raw sugar to U.S.A., Canada, Japan and the Common-wealth, of potatoes to Africa and Asian countries, of frozen meat to Middle and Far Eastern countries, of lemon grass oil to Eastern Europe, of cashewnuts to West European countries. U.S.A., of animal and sheep casing to U.K. and Australia and of fish and fish products to U.S.A., Western Europe and Japan.

6. For the promotion and expansion of trade on the lines indicated above, a great deal of internal re-organisation in the production and trade of the commodity concerned and improvements in transport and other facilities, concessions of different types, particularly freight and transport costs, and adequate control over quality of commodities exported would be required. For instance, hygienic and scientific standard would have to be imposed in slaughter houses in order to cater for the sophisticated U.S.A. and U.K. markets. Crash programmes for raising the yields of potato would have to be organised in order to export potatoes in considerable quantities (in the face of competition from other countries) to African and Asian countries. Refrigerated transport under healthy and hygienic conditions would have to be ensured for the export of onions and garlic, fruits and fish products. Proper grading, standardisation and consumer preferences would have to be taken into account in the case of several commodities, particularly, walnuts, tobacco, fruit products and raw sugar. In addition to these, we shall have to make a study of foreign markets both in regard to traditional items and new items. This study would have to take into account not only the possibilities of export but also the problems of marketing, transport, consumer's preferences and display and presentation of goods.

7. In our planning for promotion of exports adequate attention would have to be paid to competition from other countries and substitutes. For instance, in the case of lemon-grass oil we shall have to meet the competition from Guatemala and Haiti and synthetic citral; similarly in the case of palmarosa oil from Java and Madgascar and Citronella oil, in the case of lac from Thailand and synthetic substitutes, in the case of jute from Pakistan and substitutes and in the case of onions and garlic from Egypt and China; in the case of pepper from Indonesia and Sarawak. In the case of cashew-kernels our potential competitors are Kenya, Mozambique, Tanganyika and Brazil. It is clear that unless we are vigilant in regard to the competition from these countries and are prepared to face squarely the problems arising out of such competitions, any attempt at export drive would fail to yield results. Where the competition is keen our market studies would have to be particularly intensive in order to enable us to decide how best such competition could be faced. We should also like to emphasise that such studies should be continuous, concentrated and, when necessary, specific and specialised.

8. Apart from these studies which might be confined to officers or expert circule it is necessary to promote the spread of knowledge in regard to trade potentialities, consumers' preferences and the nature

of competition amongst exporters and organised trade in different commodities. For this reason it is necessary that under countries suitable sponsoring, selected people or delegations should visit the countries concerned more or less as a matter of routine at either annual or some appropriate intervals as may be required. It has to be realised that personal and trade relationship between substantial importers and exporters are essential for the promotion of exports and we cannot make any significant mark in such expansion either by an attitude of stand-offishness or by promoting official contacts alone. If the flow of trade has to be maintained at an increasing level, it is necessary that the channels of personal and trade contracts should also be continuously widened.

9. A reference has been made earlier to the present trend of international trade on bilateral lines. Our own experience has shown that bilateral trade agreements have been instrumental in developing our export with some countries. It seems to us fairly clear that this instrument is capable of being used with greater effect and more assurance of success than perhaps any other single means of trade promotion. This instrument should be particularly useful and handy in dealing with exports to developing countries of East Asia and Africa and may be a suitable instrument even in blunting the edge of competition. It is necessary that the problems of export and export promotion of different commodities should be reviewed with knowledge and expert guidance in the light of market surveys and studies and the problems that we may be facing in respect of them in different countries. The present method of dealing with these problems in our view is not always conducive to long term planning or handling and results generally in sporadic efforts in respect of individual commodities though there have undoubtedly been successful and substained efforts in a general way which have yielded very encouraging results. For the purpose of continuous vigilence and sustained efforts it seems essential that organisationally, the Ministry of Commerce should be able to devote adequate and constant attention to such matters as a matter of every-day activity. This particularly is necessary in the present dynamic state of international trade. Apart from organised cells for studies of markets and problems of each individual commodity or connected commodities, it is necessary that small business like committees or boards for important commodities should be set up so that they could meet regularly and systematically, assess and review these matters and make recommendations to the Ministry for removing bottlenecks and difficulties that might be experienced or to deal with new facts and problems that might arise or any improvements that might be required to keep up or increase the pace of expansion.

10. It is also essential that our investments in the promotion of exports should be looked at not merely from the point of view of results that can or would be obtained immediately or in the near future, but also from their long-term potentiality and importance. It is no doubt necessary that investments of foreign exchange in particular should bear the close scrutiny of the authorities that be but it is equally necessary that attention to immediate gains should not shut out long-term results and advantages and if, for the sake of these advantages, some sacrifice or losses have to be incurred in the present, they should be taken as inescapable commitments for future successes. Nor should failures or losses in

initial stages discourage or demoralise the efforts that might be required from a long term angle and can yield results only in the long run. We have to recognise the fact that many countries have been far ahead of us in different markets or in production of many articles which we can export to other countries. It is equally clear that in many cases we would be encroaching on the preserves of others and as such are bound to meet resistance and even hostility from those quarters. The virtues of patience and persistence with their inevitable reward are required to an increasing extent when a new entrant in the field has to dig his ground and hold it against outside challenges. In international trade which involves money and that too foreign money such challenges are bound to be more severe and, therefore, the need of those virtues and grit is even greater.

L/B(D)39MofCom.—1,000—29-6-65—GIPS

सत्यमेव जयते